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The National Supply of Scientists, Mathematicians, and Engineers

Volume II: Appendices A, B, and C

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John T. Durgala, Jr.
Dayton S. Pickett
David A. Smith

Logistics Management Institute
6400 Goldsboro Road
Bethesda, Maryland 20817-5886

PREFACE

This report contains our analysis of the supply of scientists, mathematicians, and engineers in the United States through the year 2020. It consists of three volumes.

In Volume one, the main body of the report, we outline the issues associated with the national supply of these professionals, describe a methodology to project their future supply, and report our findings.

Volume two contains three appendices. Appendices A and B show the specific formulas and techniques used in our projection methodology. Appendix C provides detailed demographic data on scientists, mathematicians, and engineers who are civilian employees of DoD.

Volume three (Appendix D) is a set of tables that forms the basis of our projections and our analysis.

CONTENTS

APPENDIX A

REGRESSION EQUATIONS FOR PROJECTING DEGREES
BY TYPE AND GENDER

APPENDIX A

REGRESSION EQUATIONS FOR PROJECTING DEGREES BY TYPE AND GENDER

GENERAL

This appendix describes the methods used to develop the linear regression equations for projecting the future number of new degrees to be conferred in science, mathematics, and engineering (SME) disciplines.

A total of six equations were developed. There is an equation for both men and women for each of three degree types: bachelor's, master's, and doctor's.

REGRESSION TECHNIQUES

Data

The data for the linear regression analysis were drawn from the years 1976 through 1989. We regressed the number of bachelor's, master's, and doctor's degrees conferred to men and women as reported by the National Center for Educational Statistics (NCES) with various population age groups and full-time and part-time enrollments in different education programs. Information on population age groups was taken from Bureau of the Census (BOC) publications, while the number of individuals in the different education programs came from NCES.

Regression Strategy

Our procedure was to consider a wide set of all reasonable factors as candidates for variables in a linear regression that used ordinary least squares as the measure of the straight line that best fits the data. We then systematically regressed all possible combinations of these candidate variables. As we screened the large set of variables, those that were redundant with respect to predicting the number of degrees conferred were eliminated. A new set was then analyzed.

After the final set of variables for each regression equation was selected, each of the variables was further analyzed. First the significance of the coefficients of each of

the variables was tested against the appropriate "t" statistic. Next, we conducted a careful review of the multicollinearity associated with each final set.

Multicollinearity refers to the intercorrelation of the set of independent variables in the regression equation. Since our equations contained population age groups and numbers of individuals in education programs as independent variables, we were concerned about potential interrelation among the factors. We did not include any variables that did not meet the Durbin-Watson test.

REGRESSION EQUATIONS

General

The equations used to project the total number of degrees, by type, for both men and women, are listed in this section. In each case, an ordinary least squares criterion was used to determine the line that best fits the data.

We show the coefficient of determination (R^2) associated with each equation. The interpretation of R^2 is that it indicates the amount of uncertainty that can be eliminated in predicting the dependent variable (number of degrees conferred in our case) given the independent variables are known.

A-4

Bachelor's Degrees

Men:

$$BACHM = 85785 + 84.75 UGFT4M + 127.79 UGPT4M + .25 P1824M + 1.22 P2534M$$

$$R^2 = .87$$

Women:

$$BACHW = 57404 - 125.65 UGFT4W + 367.81 UGPT4W + 5.79 P1824W + 3.16 P2534W$$

$$R^2 = .99$$

Where:

BACHM	=	Number of bachelor's degrees awarded to men
BACHW	=	Number of bachelor's degrees awarded to women
UGFT4M	=	Full-time undergraduate male enrollment in 4-year institutions (lagged 3 years)
UGPT4M	=	Part-time undergraduate male enrollment in 4-year institutions (lagged 3 years)
P1824M	=	Population of 18- to 24-year-old males
P2534M	=	Population of 25- to 34-year-old males
UGFT4W	=	Full-time undergraduate female enrollment in 4-year institutions (lagged 3 years)
UGPT4W	=	Part-time undergraduate female enrollment in 4-year institutions (lagged 3 years)
P1824W	=	Population of 18- to 24-year-old women
P2534W	=	Population of 25- to 34-year-old women

Master's Degrees

Men:

$$MASTM = 13245 + 1086.99GFTM - 93.18GPTM - 7.79P3544M$$

$$R^2 = .93$$

Women:

$$MASTW = 68164 - 234.19GFTW + 302.75GPTW - .80P3544W$$

$$R^2 = .87$$

Where:

$MASTM$ = Number of master's degrees awarded to men

$MASTW$ = Number of master's degrees awarded to women

$GFTM$ = Full-time male graduate enrollment

$GPTM$ = Part-time male graduate enrollment

$P3544M$ = Population of 35- to 44-year-old men

$GFTW$ = Full-time female graduate enrollment (lagged 2 years)

$GPTW$ = Part-time female graduate enrollment (lagged 2 years)

$P3544W$ = Population of 35- to 44-year-old women

Doctor's Degrees

Men:

$$DOCM = 1515 + 108.78GFTM - 4.59GPTM - .78P3544M$$

$$R^2 = .86$$

Women:

$$DOCW = 1346 + 24.24GPTW + .24P3544W$$

$$R^2 = .95$$

Where:

|		
DOCM	=	Number of doctor's degrees awarded to men
DOCW	=	Number of doctor's degrees awarded to women
GFTM	=	Full-time male graduate enrollment
GPTM	=	Part-time male graduate enrollment
P3544M	=	Population of 35- to 44-year-old men
GPTW	=	Part-time female graduate enrollment
P3544W	=	Population of 35- to 44-year-old women

APPENDIX B

METHODOLOGY FOR PROJECTING DEGREES
BY ACADEMIC DISCIPLINE

APPENDIX B

METHODOLOGY FOR PROJECTING DEGREES
BY ACADEMIC DISCIPLINE

GENERAL

In this appendix we describe the methodology for distributing the total number of bachelor's, master's, and doctor's degrees among the scientific, mathematics, and engineering (SME) disciplines.

The information was taken from official National Center for Education Statistics (NCES) reports as referred to in Chapter 2. Data on the total number of bachelor's, master's, and doctor's degrees awarded for the period 1974 through 1988 was used.

A specific example for Civil Engineering bachelor's degrees is used to describe the methodology.

METHODOLOGY

Total Degrees Conferred

The first step was to record the total number of bachelor's, master's, and doctor's awarded each year from 1974 through 1988. In 1974, for example, 945,776 bachelor's degrees were conferred in the United States.

Degrees Conferred By Broad Category

We also tabulated the number of degrees that were conferred in each of the ten broad SME categories and calculated the percent of the total degrees that each category comprised. In 1974, there were 42,840 bachelor's degrees conferred in Engineering. Engineering degrees accounted for about 4.5 percent of the bachelor's total.

The percent for each of the ten broad categories for each year from 1974 through 1988 was similarly determined for all types of degrees. We analyzed the percent of

total degrees accounted for by each of the ten broad categories. For all of the categories except Computer and Information Science (which showed percent increases in each year), there was no dominant increasing or decreasing trend and the change between successive years was small. For example, the greatest difference in percent of total degrees from one year to the next for Engineering was only 14.2 percent.

Because we found no dominant trend for nine of the ten broad categories, we determined that the mean percent of the total number of bachelor's, master's, and doctor's degrees was the best estimate for the portion of the total that each broad category (except Computer and Information Science) would represent. The mean percent of the total number of bachelor's, master's, and doctor's degrees and the standard deviation of the percent was calculated for nine of the categories. Engineering, for example, had a mean of 6.3 percent and a standard deviation of 1.3 percent for bachelor's degrees.

Our low-range estimate for the degrees from nine of the broad categories was calculated by subtracting the standard deviation from the mean percent of the total degrees (6.3 - 1.3 for Engineering bachelor's). The mean percent was used for the mid-range estimate, and the mean percent plus the standard deviation was used for the high-range estimate (6.3 + 1.3 for Engineering bachelor's).

A similar technique was employed for Computer and Information Science. Instead of calculating the mean percent, however, we used the mean percent increase and the standard deviation of the percent increase. The standard deviation of the percent increase was subtracted from and added to the mean percent increase to obtain low- and high-range estimates, respectively.

The projection of the number of degrees by type and by broad category resulted from the multiplication of the appropriate percent estimate by the estimate of the total number of degrees conferred. For example, to obtain the low-range projection of Engineering bachelor's degrees, we multiplied the low-range percent of the total (Engineering's mean percent minus the standard deviation of the percent) by the low-range estimate of bachelor's for the future year. The mid- and high-range estimates for all types of degrees were calculated in the same manner.

Degrees Conferred By Discipline

Within some of the broad categories, we were able to provide more detail by discipline. For these disciplines, an additional step was needed to obtain the projection.

We had only 2 years' information on the number of degrees by discipline (number of Civil Engineering degrees within Engineering, as an example). The percent of the broad category total was calculated. Civil Engineering degrees accounted for 10.7 percent of all Engineering degrees in 1987 and 1988 for example.

With data for only 2 years, we could not calculate a meaningful standard deviation for the percent of the broad category. The low-, mid-, and high-range projections for number of degrees by discipline were obtained by multiplying the discipline percent by the low-, mid-, and high-range broad category projections, respectively.

Example for Civil Engineering

Our mid-range estimate of the number of bachelor's degrees conferred in 2002 is 1,037,244. Of this total, 92.2 percent are expected to be awarded to students who are U.S. citizens. Further, we estimate that about 6.9 percent of the total bachelor's degrees will be awarded in the Engineering category. Our mid-range estimate of the number of Bachelor's Engineering degrees to be conferred in 2020 is 66,914 (1,037,244 × .922 × .0688).

To estimate the mid-range number of Civil Engineering degrees, we multiply 66,914 (the number of Engineering degrees) by 10.78 percent (the portion of Engineering degrees that historically have been awarded in Civil Engineering). Our mid-range estimate for Civil Engineering bachelor's degrees is thus 7,218 (66,514 × .1078).

APPENDIX C

THE DoD CIVILIAN WORK FORCE OF SCIENTISTS, MATHEMATICIANS, AND ENGINEERS

APPENDIX C

THE DoD CIVILIAN WORK FORCE OF SCIENTISTS, MATHEMATICIANS, AND ENGINEERS

GENERAL

This appendix contains information on civilian scientists, mathematicians, and engineers (SMEs) who are employed by DoD. The data were obtained from the civilian personnel files of the Defense Manpower Data Center (DMDC). They cover the period from 1980 through 1990. For each of the years, the status as of 30 September is reported.

Two pages are devoted to each of the 88 DoD occupations that we consider to represent SME fields. Page headings contain the occupation code (e.g., 00020) and the occupation title (e.g., Community Planning). Demographic information for the most recent year available (1990) is displayed in tabular form on the first page (1990 Profile) of each two page set. The second page of each two page set (1980 through 1990 trends) contains graphs of the trends in: percent of employees without a college or university degree, retirement eligibility, average number of years of DoD employment, average number of years since obtaining the last degree, and average age.

1990 PROFILE

Data for 30 September 1990 are displayed on the first page. Six categories of information: total number of personnel employed, gender, race/ethnicity, citizenship, defense employer, and academic degree background are included.

The academic degree background section shows the disciplines represented by the degree-holders in each occupation. The four most prominent disciplines (in terms of number of employees holding their most recent degree in the discipline) are displayed. Along with the number of employees holding the degree, we list the distribution of type of degree. For example, as of 30 September 1990, in occupation 00020, Community Planning, 25 employees hold degrees in Geography (the second most prominent discipline). The 25 Geography degrees include 12 bachelor's,

12 master's, and 1 doctor's degree. Data on degrees applies to the most recent degree awarded to the employee.

1980 THROUGH 1990 TRENDS

Information on employment and educational trends is displayed in two graphs on the second page. The bar graph shows the percent of the occupation that did not have a college or university degree (Nondegreed) and the percent eligible to retire (Retirement eligible) for each year. The line graph shows the average number of years of DoD employment, average number of years since obtaining the last degree, and the average age for all the DoD civilian employees in the occupation for each successive year.

It is important to note that the DoD employment data do not necessarily mean that all of the DoD employment is in the specific occupation. An individual may have transferred from another position into the current SME occupation.

As illustrated above, the data on individuals who hold degrees and are employed in each occupation indicates only that a degree is held. The degree may not be in the same field as the DoD occupation in which the individual is employed. Degree information also refers only to the latest degree attained.

For some of the occupations data are not included for all years. There are two main reasons for the missing information. Some occupations did not exist in the earlier years of the period and so could not be displayed for those years. We also found that some information was obviously incorrect (a person employed by DoD before he or she was born, for example). When the incorrect information caused the size of the population for a given occupation in a given year to be too small to be meaningful, we did not display it.

OCCUPATION: 00020 – COMMUNITY PLANNING

1990 Employee Profile
DoD total employed: 224

Selected characteristics			
Gender		**Citizenship**	
Male	172	United States	224
Female	52	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	1	Army	80
Asian	7	Navy	35
Black	8	Marine Corps	2
Hispanic	10	Air Force	107
White	198	Defense Agency	0
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			**Number of employees, by degree level**			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	City, Community, and Regional Planning	56	10	46	0	0
Second	Geography	25	12	12	1	0
Third	Urban Studies	22	10	12	0	0
Fourth	Public Administration	14	5	9	0	0
	Other fields	91	59	31	1	0
	Nondegreed	16	0	0	0	16
	Unknown	0	0	0	0	0

OCCUPATION: 00020 – COMMUNITY PLANNING
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD employment

Average years since degree

Year of inventory
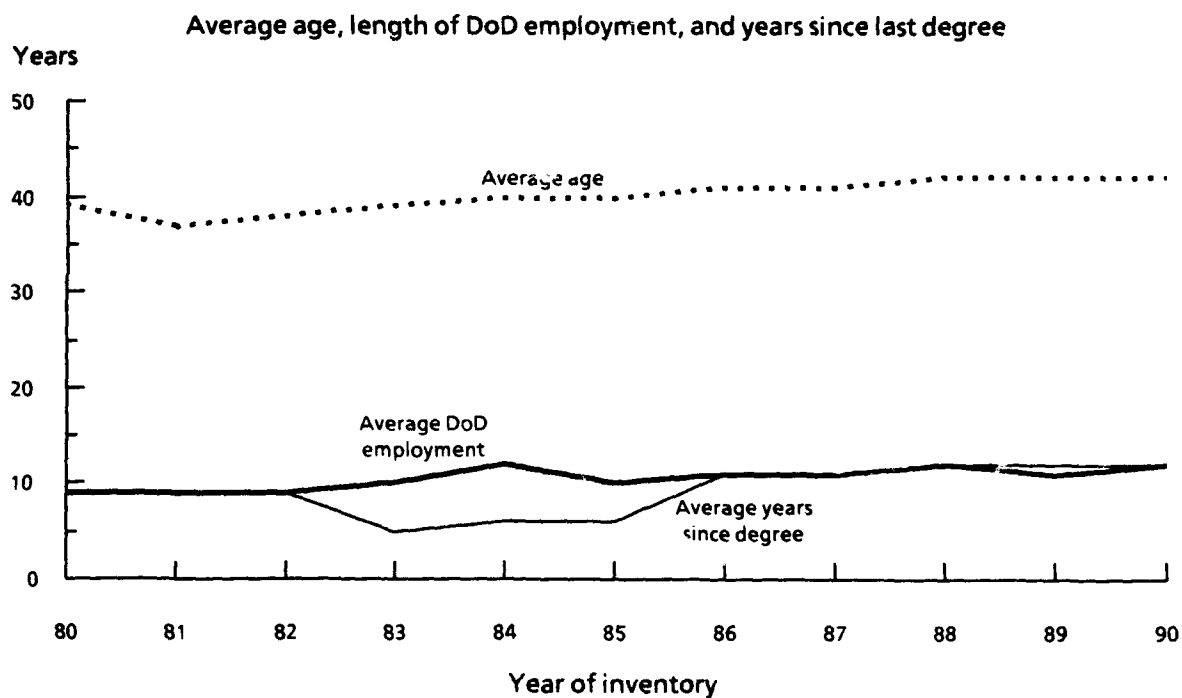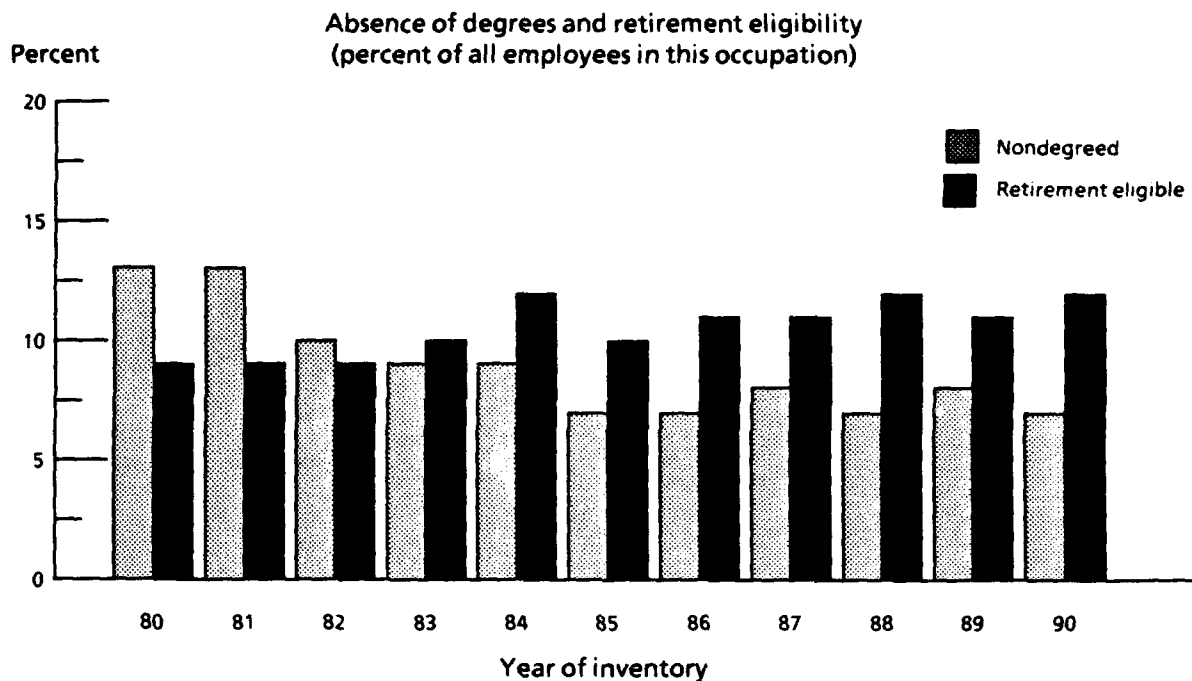
OCCUPATION: 00028 – ENVIRONMENTAL PROTECTION SPECIALIST

1990 Employee Profile
DoD total employed: 792

Selected characteristics			
Gender		**Citizenship**	
Male	574	United States	792
Female	218	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	8	Army	219
Asian	24	Navy	135
Black	47	Marine Corps	31
Hispanic	36	Air Force	146
White	677	Defense Agency	261
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			**Number of employees, by degree level**			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Biology, General	70	54	14	2	0
Second	Business Management and Administration	33	20	13	0	0
Third	Geography	19	14	5	0	0
Fourth	Geology	16	8	8	0	0
Fifth	Chemistry, General	16	13	2	1	0
	Other fields	297	188	100	9	0
	Nondegreed	340	0	0	0	340
	Unknown	1	0	0	1	0

OCCUPATION: 00028 – ENVIRONMENTAL PROTECTION SPECIALIST
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Average age, length of DoD employment, and years since last degree
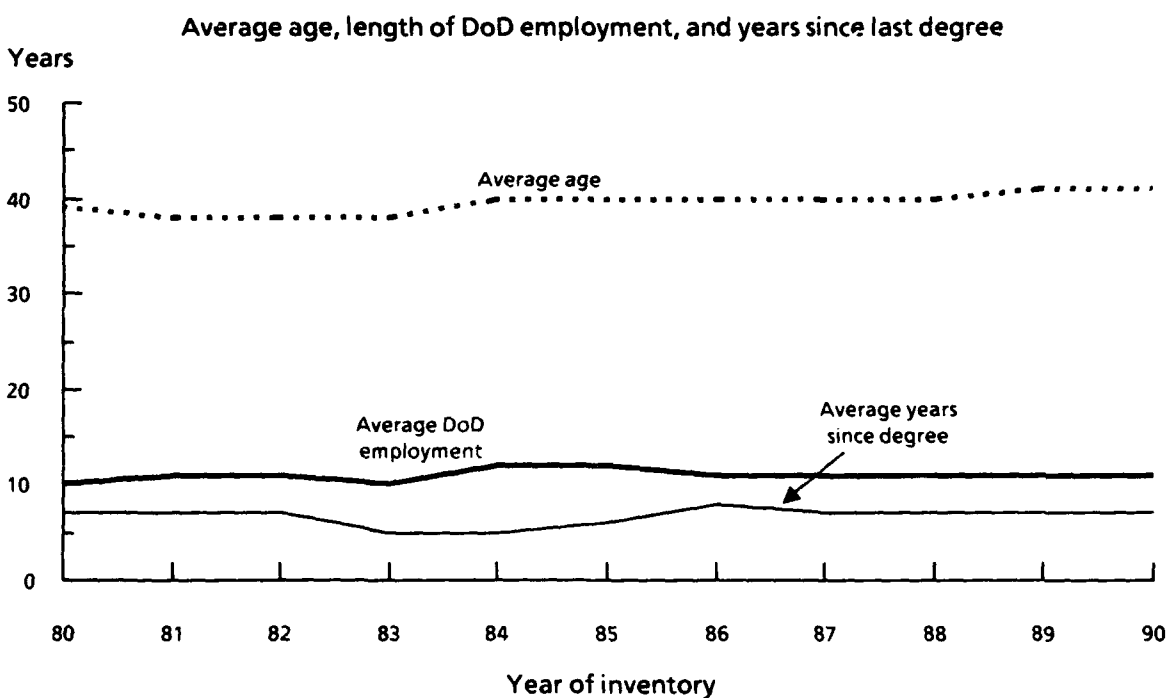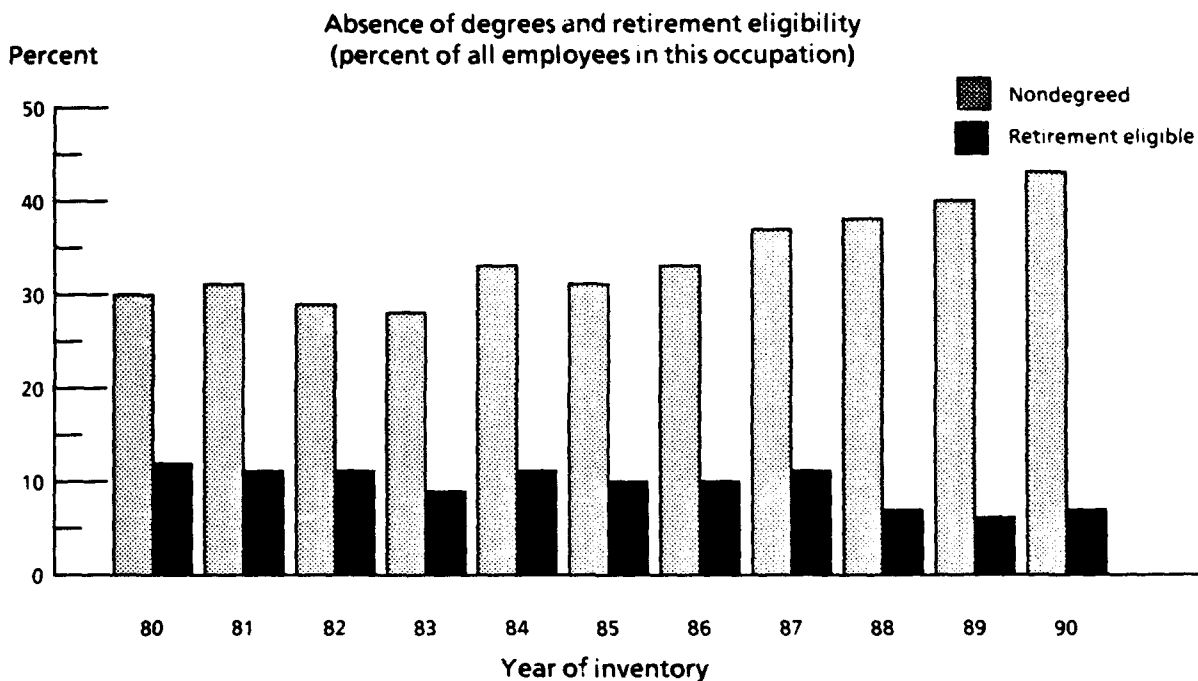
OCCUPATION: 00101 – SOCIAL SCIENCE

1990 Employee Profile
DoD total employed: 1,465

Selected characteristics			
Gender		**Citizenship**	
Male	666	United States	1,465
Female	799	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	13	Army	815
Asian	26	Navy	256
Black	238	Marine Corps	41
Hispanic	60	Air Force	330
White	1,128	Defense Agency	23
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			**Number of employees, by degree level**			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Psychology, Counseling	126	12	104	10	0
Second	Social Work	121	32	88	1	0
Third	Sociology	75	45	27	3	0
Fourth	Guidance Counseling	75	4	69	2	0
	Other fields	778	312	385	81	0
	Nondegreed	289	0	0	0	289
	Unknown	1	1	0	0	0

OCCUPATION: 00101 – SOCIAL SCIENCE
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Nondegreed

Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD employment

Average years since degree

Year of inventory
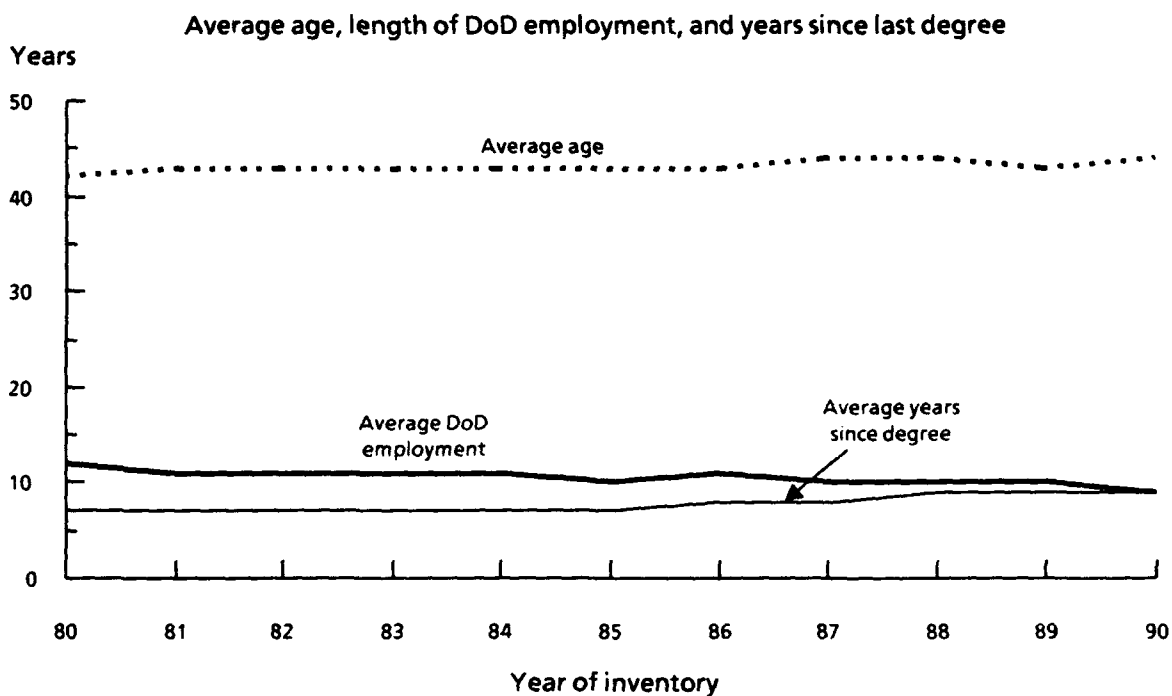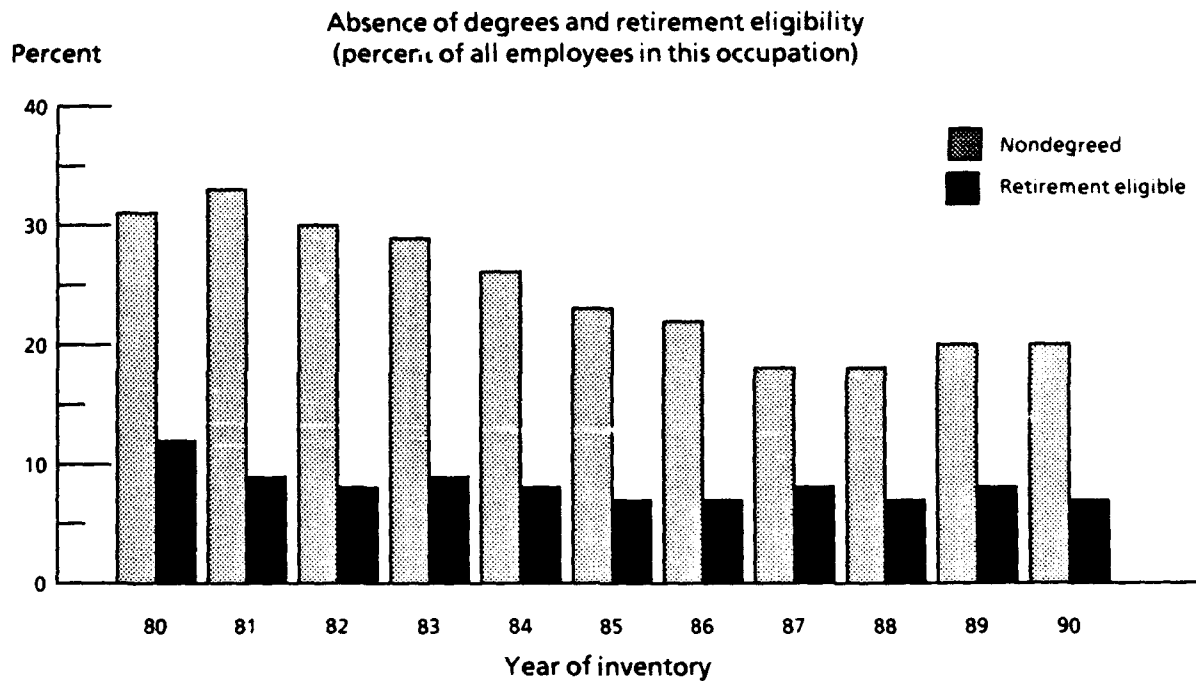
OCCUPATION: 00110 – ECONOMIST

1990 Employee Profile
DoD total employed: 326

Selected characteristics			
Gender		**Citizenship**	
Male	264	United States	326
Female	62	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	3	Army	30ї
Asian	8	Navy	15
Black	17	Marine Corps	0
Hispanic	4	Air Force	1
White	294	Defense Agency	9
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			**Number of employees, by degree level**			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Economics	187	87	84	16	0
Second	Business Economics	34	17	9	8	0
Third	Agriculture Economics	28	6	19	3	0
Fourth	Business Mgmt. and Admin.	13	5	7	1	0
	Other fields	55	29	21	5	0
	Nondegreed	8	0	0	0	8
	Unknown	1	0	1	0	0

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Average age, length of DoD employment, and years since last degree

OCCUPATION: 00150 – GEOGRAPHY

1990 Employee Profile
DoD total employed: 98

Selected characteristics			
Gender		**Citizenship**	
Male	79	United States	98
Female	19	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	2	Army	51
Asian	2	Navy	3
Black	2	Marine Corps	0
Hispanic	1	Air Force	0
White	91	Defense Agency	44
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Geography	64	45	14	5	0
Second	Geology	6	4	0	2	0
	Other fields	21	7	13	1	0
	Nondegreed	7	0	0	0	7
	Unknown	0	0	0	0	0

OCCUPATION: 00150 – GEOGRAPHY
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD employment

Average years since degree

Year of inventory
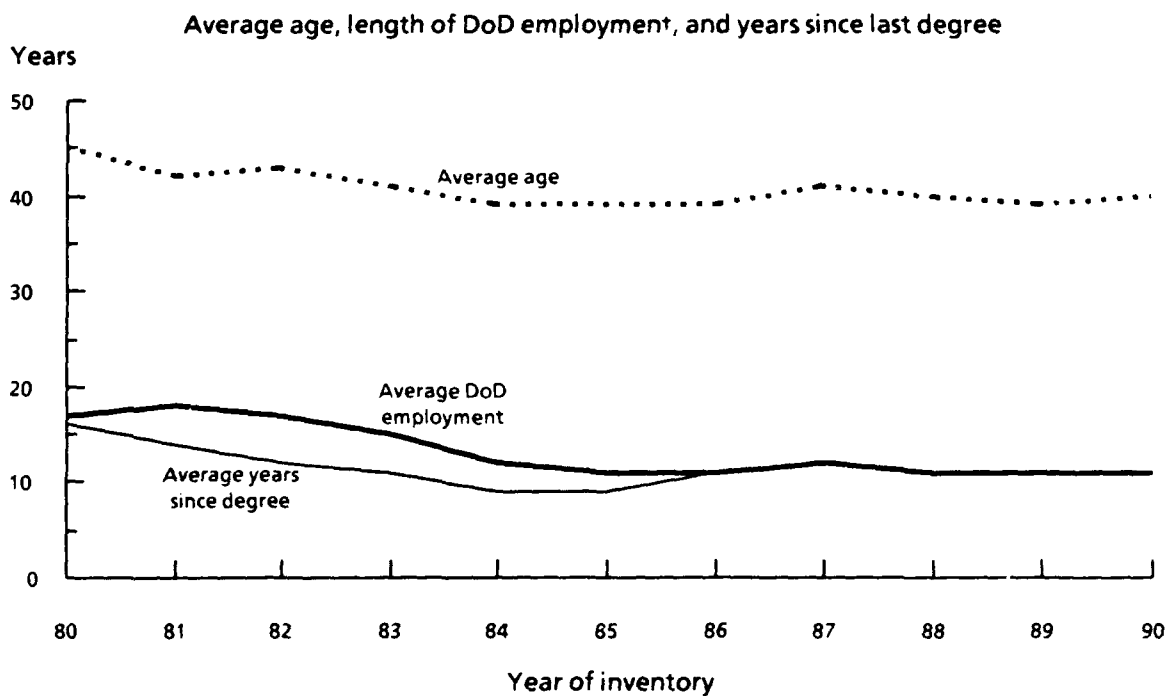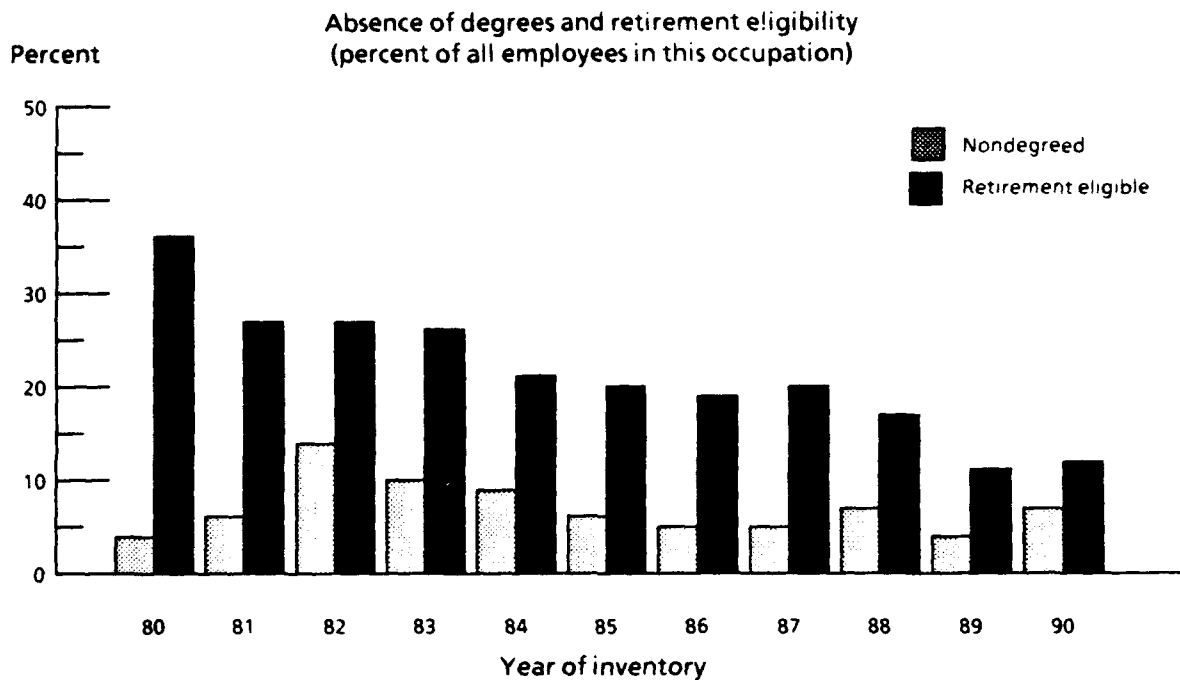
OCCUPATION: 00180 – PSYCHOLOGY

1990 Employee Profile
DoD total employed: 1,188

Selected characteristics			
Gender		Citizenship	
Male	819	United States	1,187
Female	369	Foreign nation	1
Race/ethnicity		Employer	
American Indian	3	Army	594
Asian	18	Navy	348
Black	50	Marine Corps	3
Hispanic	21	Air Force	203
White	1,096	Defense Agency	40
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Psychology, General	364	91	140	133	0
Second	Psychology, Experimental	203	21	65	117	0
Third	Psychology, Counseling	83	9	57	17	0
Fourth	Psychology, Clinical	76	2	20	54	0
	Other fields	426	50	189	187	0
	Nondegreed	34	0	0	0	34
	Unknown	2	0	1	1	0

OCCUPATION: 00180 – PSYCHOLOGY
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD employment

Average years since degree

Year of inventory
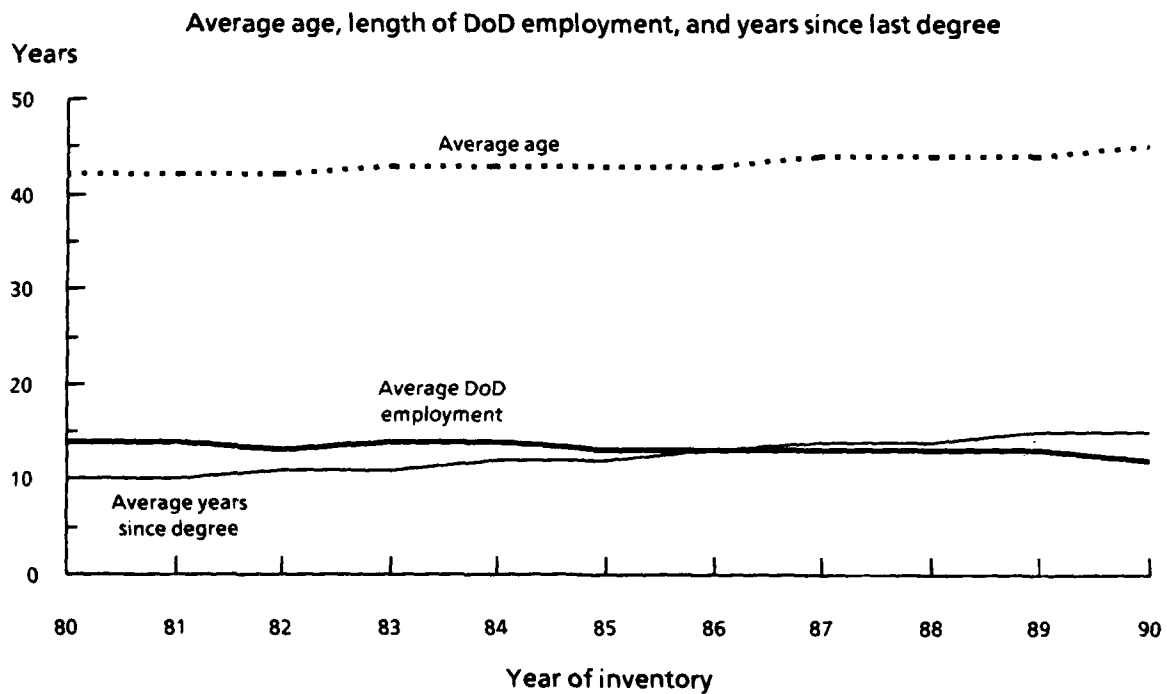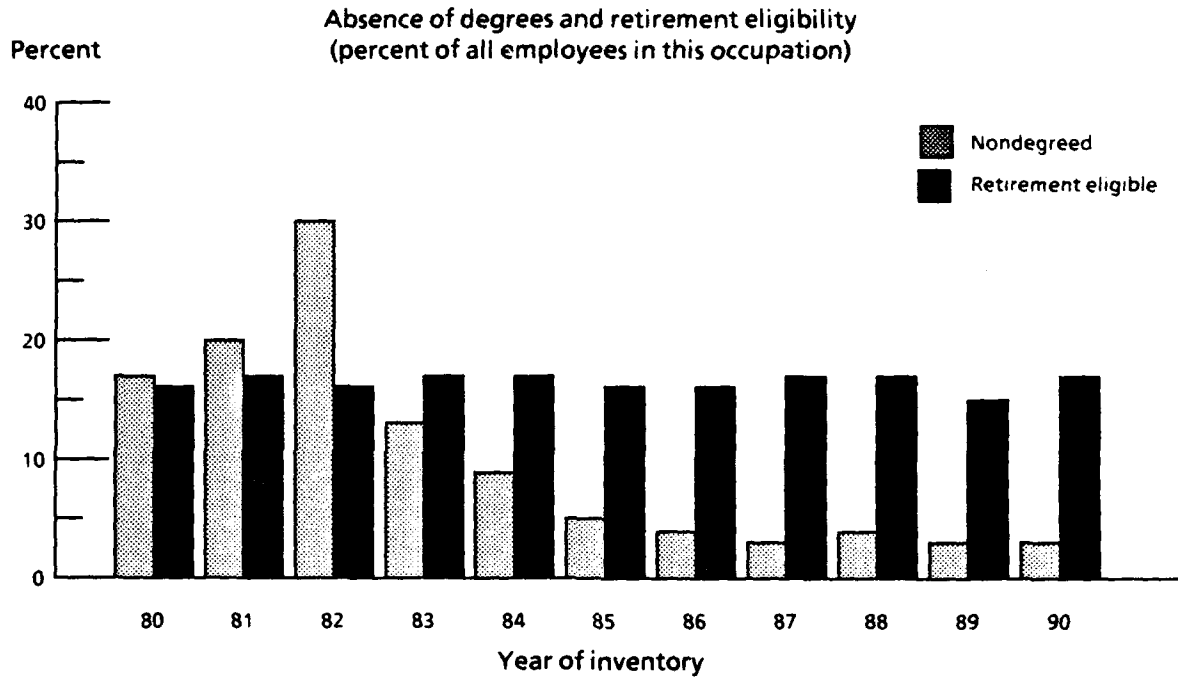
OCCUPATION: 00184 – SOCIOLOGY

1990 Employee Profile
DoD total employed: 11

Selected characteristics			
Gender		Citizenship	
Male	5	United States	11
Female	6	Foreign nation	0
Race/ethnicity		Employer	
American Indian	0	Army	11
Asian	0	Navy	0
Black	1	Marine Corps	0
Hispanic	0	Air Force	0
White	10	Defense Agency	0
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Sociology	8	4	1	3	0
Second	Political Science and Gov't.	1	0	0	1	0
Third	Geology	1	1	0	0	0
	Other fields	0	0	0	0	0
	Nondegreed	1	0	0	0	1
	Unknown	0	0	0	0	0

OCCUPATION: 00184 – SOCIOLOGY
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

- Average age
- Average DoD employment
- Average years since degree

Year of inventory
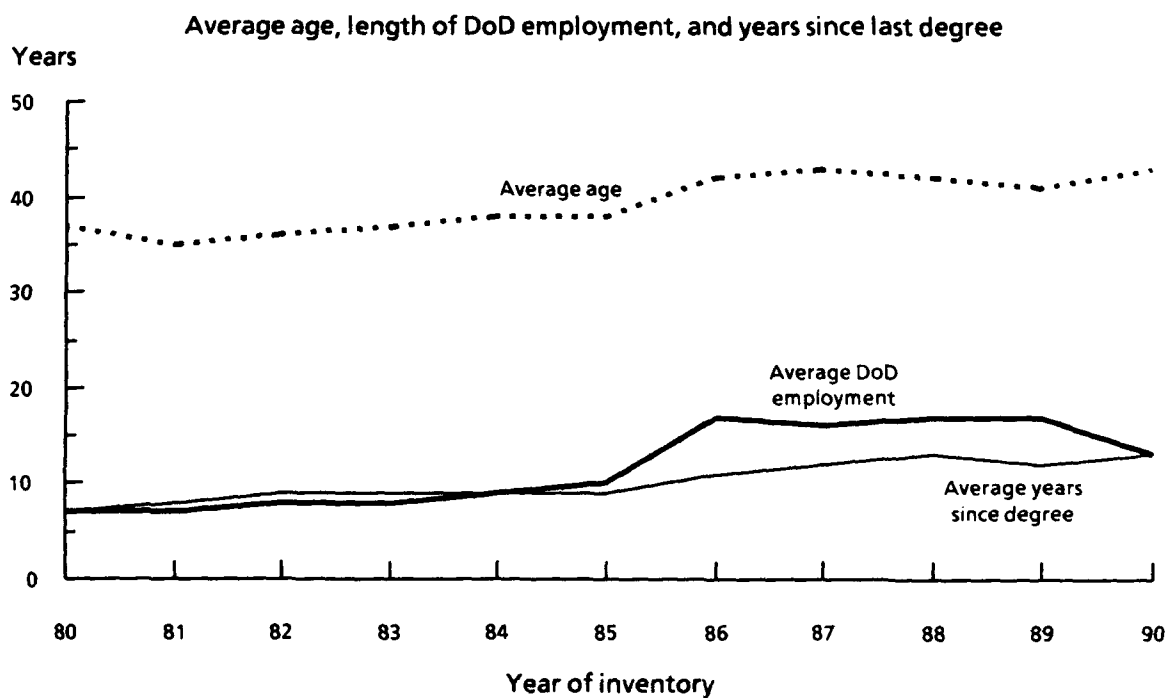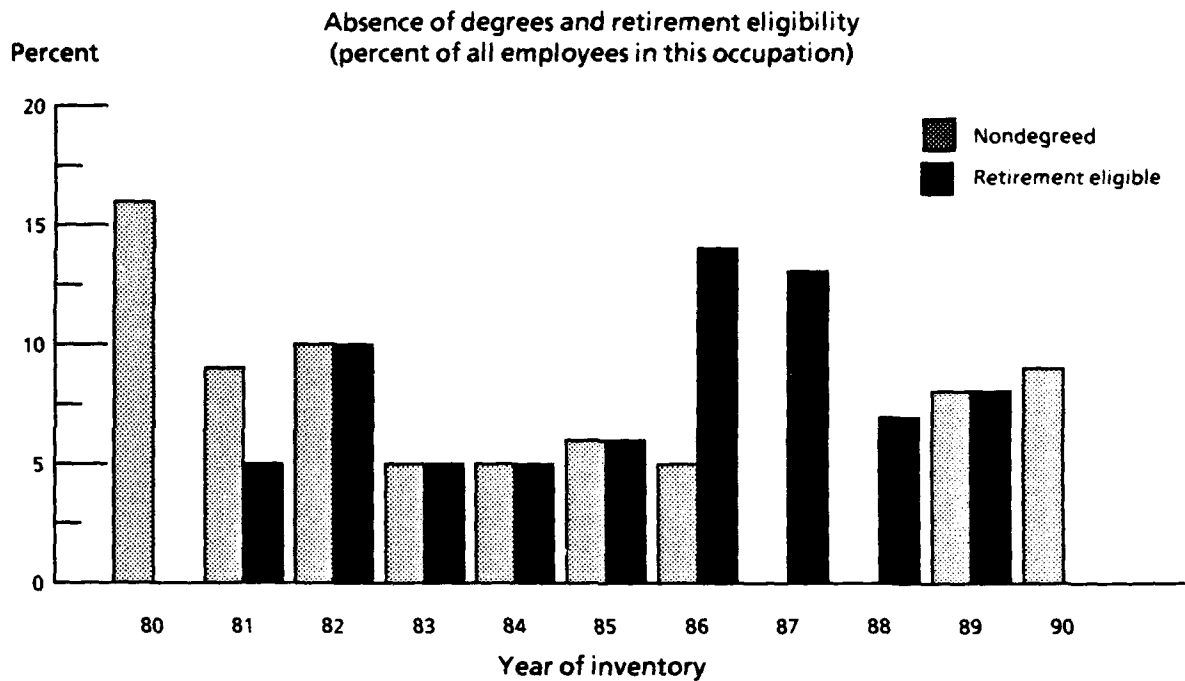
OCCUPATION: 00190 – GENERAL ANTHROPOLOGY

1990 Employee Profile
DoD total employed: 16

Selected characteristics

Gender		Citizenship	
Male	11	United States	15
Female	5	Foreign nation	1
Race/ethnicity		**Employer**	
American Indian	0	Army	13
Asian	1	Navy	0
Black	0	Marine Corps	0
Hispanic	1	Air Force	3
White	14	Defense Agency	0
Other	0	Unknown	0

Academic degree backgrounds

Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Anthropology	13	3	3	7	0
Second	Experimental Psychology	1	0	0	1	0
Third	Statistics	1	0	1	0	0
Fourth	Slavic Languages	1	0	1	0	0
	Other fields	0	0	0	0	0
	Nondegreed	0	0	0	0	0
	Unknown	0	0	0	0	0

OCCUPATION: 00190 – GENERAL ANTHROPOLOGY
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD employment

Average years since degree

Year of inventory
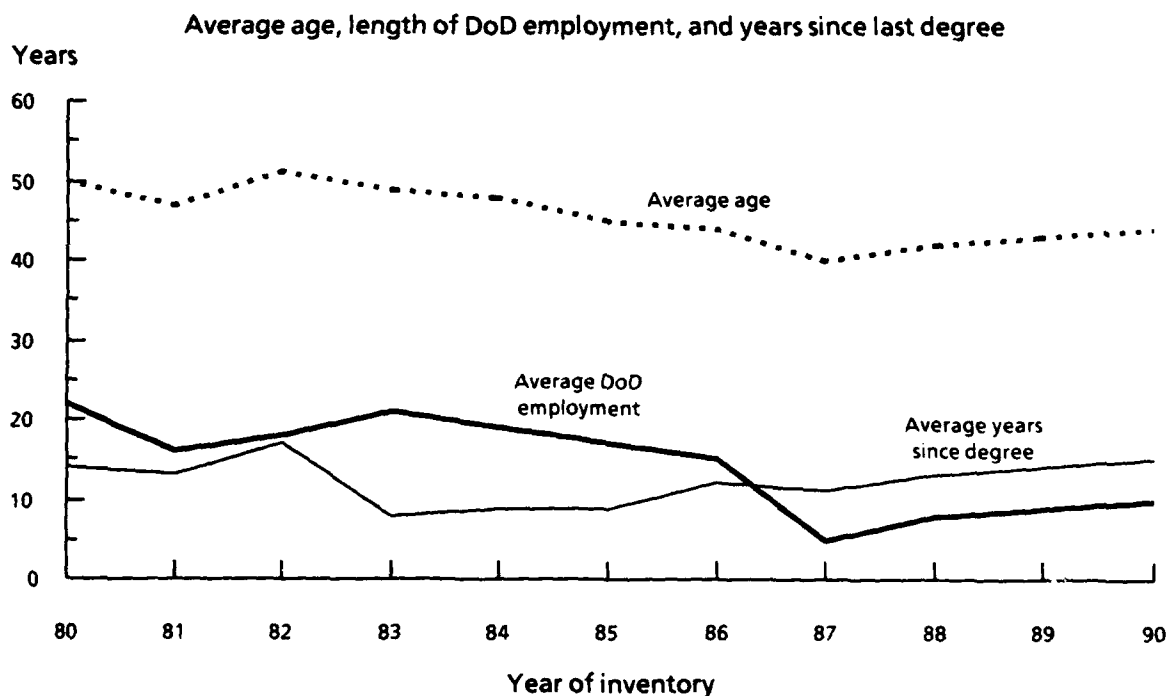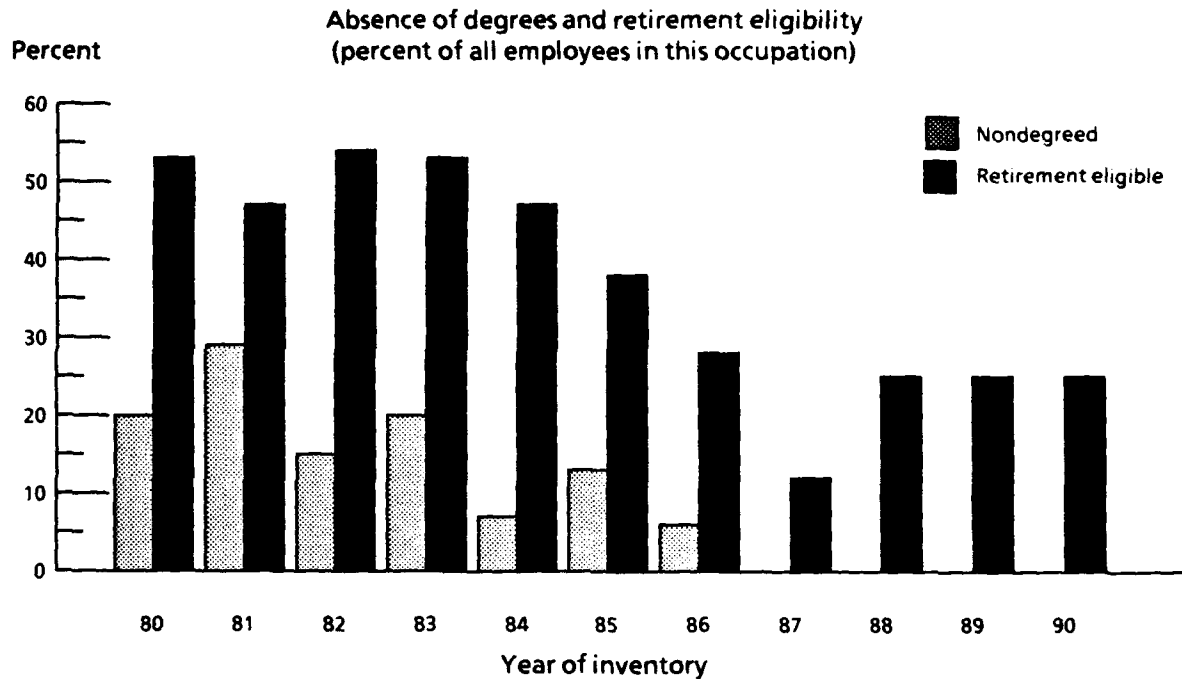
OCCUPATION: 00193 – ARCHEOLOGY

1990 Employee Profile
DoD total employed: 105

Selected characteristics

Gender		Citizenship	
Male	67	United States	105
Female	38	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	0	Army	95
Asian	1	Navy	4
Black	0	Marine Corps	0
Hispanic	0	Air Force	6
White	104	Defense Agency	0
Other	0	Unknown	0

Academic degree backgrounds

Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Anthropology	58	17	30	11	0
Second	Archeology	36	9	22	5	0
	Other fields	7	1	3	3	0
	Nondegreed	4	0	0	0	4
	Unknown	0	0	0	0	0

OCCUPATION: 00193 – ARCHEOLOGY
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD employment

Average years since degree

Year of inventory
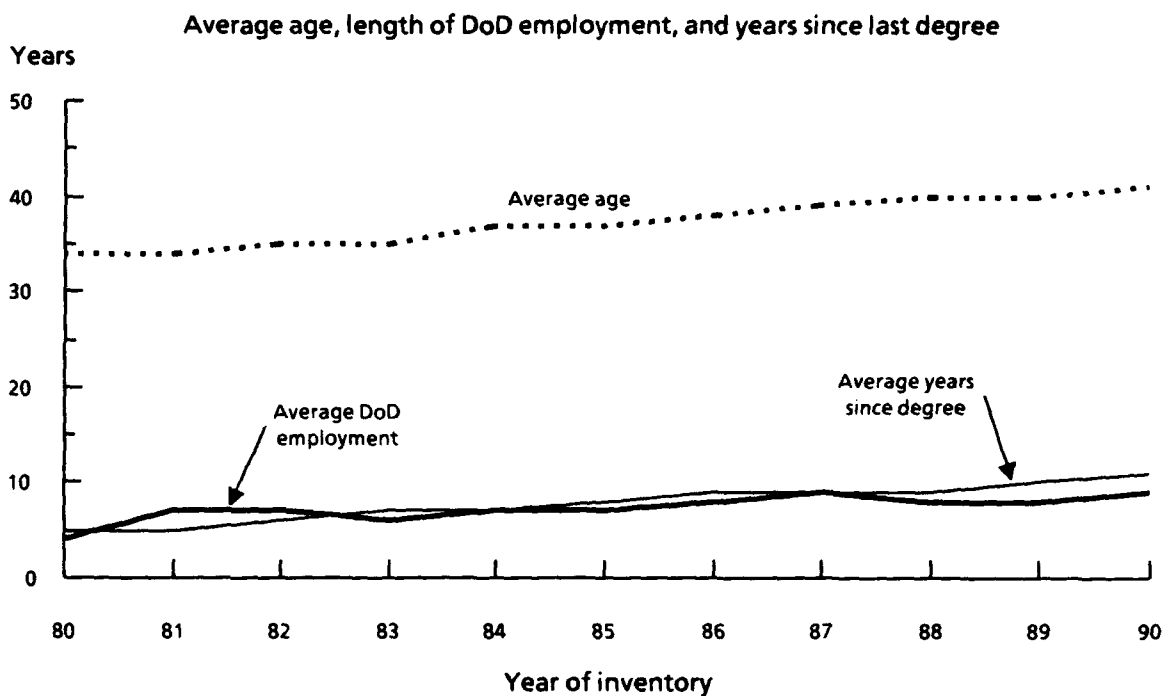
OCCUPATION: 00334 – COMPUTER SPECIALIST

1990 Employee Profile
DoD total employed: 27,518

Selected characteristics			
Gender		**Citizenship**	
Male	16,950	United States	27,469
Female	10,568	Foreign nation	49
Race/ethnicity		**Employer**	
American Indian	165	Army	9,192
Asian	1,043	Navy	9,872
Black	3,001	Marine Corps	588
Hispanic	846	Air Force	4,520
White	22,416	Defense Agency	3,346
Other	47	Unknown	0

Academic degree backgrounds						
Academic major			**Number of employees, by degree level**			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Business Mgmt. and Admin.	1,787	1,410	369	6	2
Second	Computer and Info. Science	1,771	1,505	258	4	4
Third	Mathematics, General	1,034	905	127	2	0
Fourth	Info. Science and Systems	338	261	76	1	0
	Other fields	5,886	4,830	981	59	16
	Nondegreed	16,680	0	0	0	16,680
	Unknown	22	20	2	0	0

OCCUPATION: 00334 – COMPUTER SPECIALIST
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

- Average age
- Average DoD employment
- Average years since degree

Year of inventory
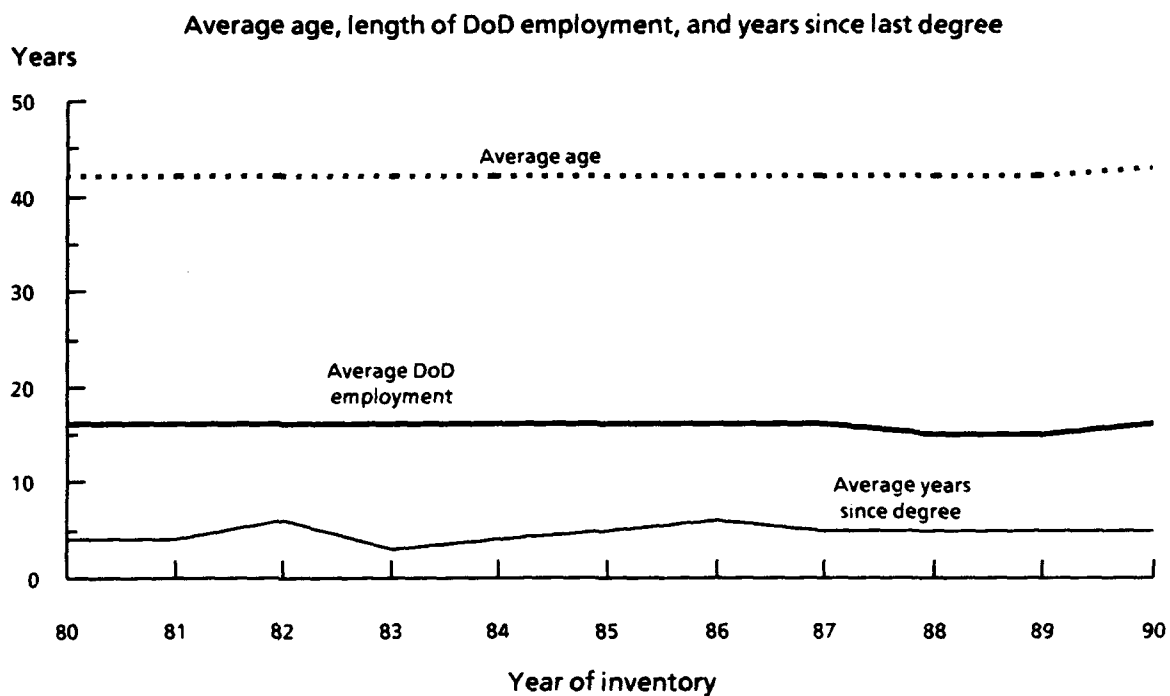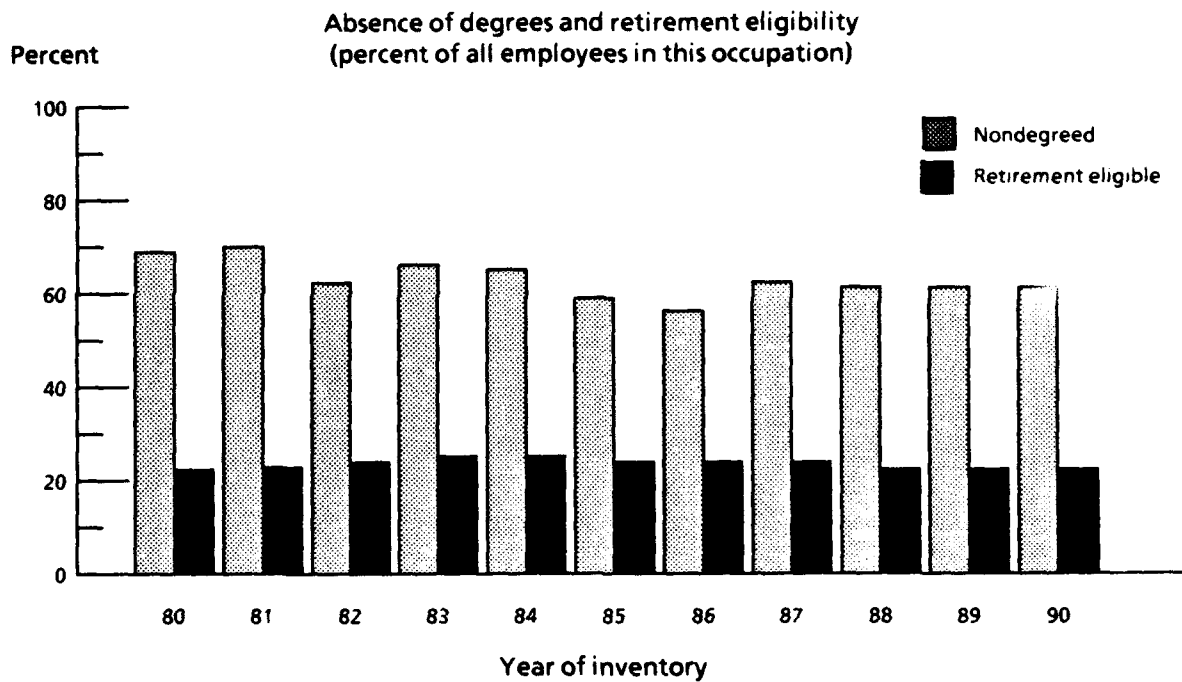
OCCUPATION: 00401 – GENERAL BIOLOGICAL SCIENCE

1990 Employee Profile
DoD total employed: 1,012

Selected characteristics

Gender		Citizenship	
Male	769	United States	1,003
Female	243	Foreign nation	9
Race/ethnicity		**Employer**	
American Indian	2	Army	837
Asian	22	Navy	64
Black	43	Marine Corps	11
Hispanic	15	Air Force	36
White	930	Defense Agency	64
Other	0	Unknown	0

Academic degree backgrounds

Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Biology, General	343	227	91	25	0
Second	Wildlife Biology	58	34	22	2	0
Third	Ecology	54	10	32	12	0
	Other fields	490	195	201	94	0
	Nondegreed	65	0	0	0	65
	Unknown	2	0	2	0	0

OCCUPATION: 00401 – GENERAL BIOLOGICAL SCIENCE
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD employment

Average years since degree

Year of inventory
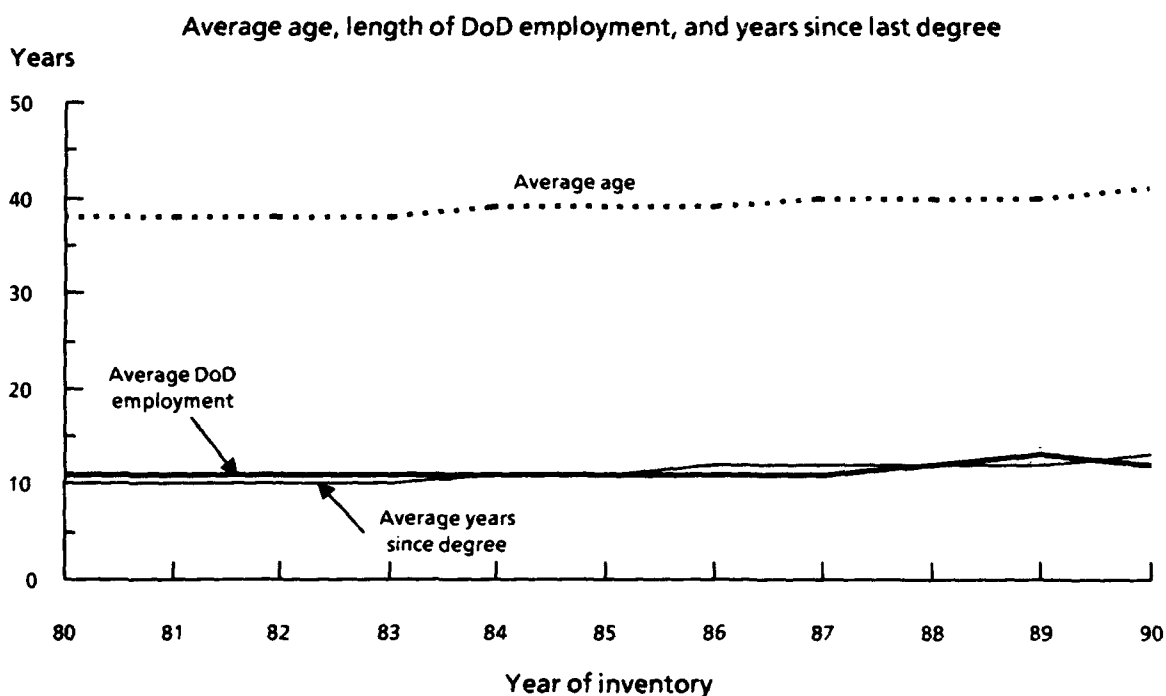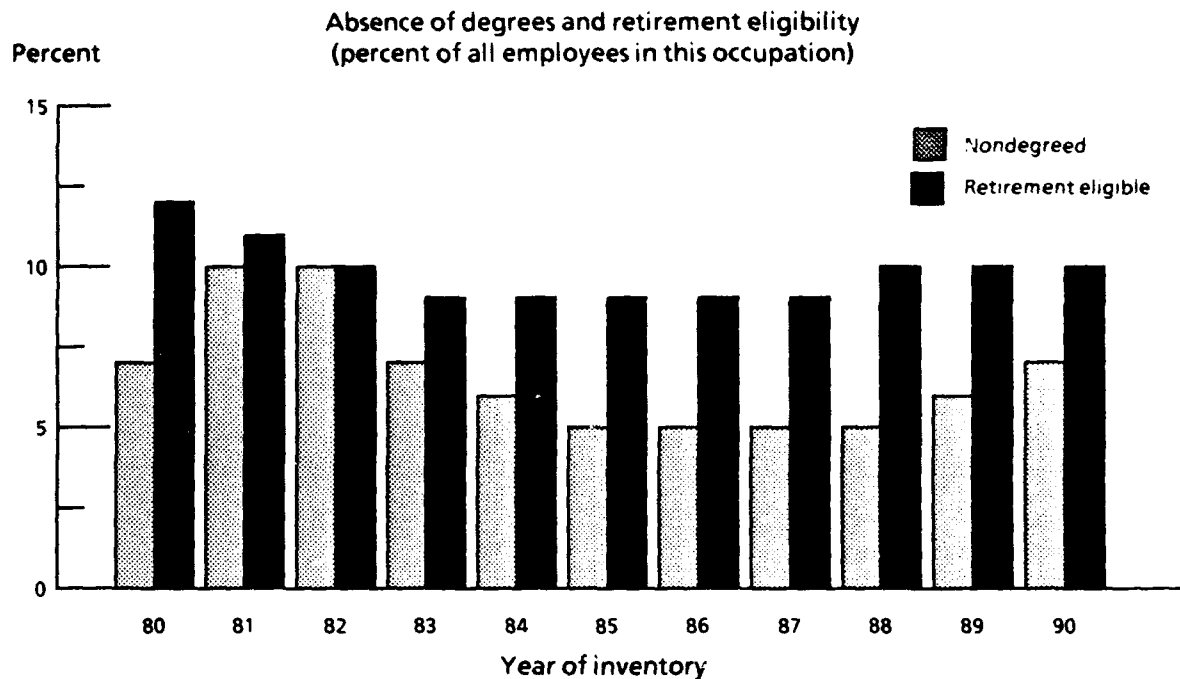
OCCUPATION: 00403 – MICROBIOLOGY

1990 Employee Profile
DoD total employed: 290

Selected characteristics			
Gender		**Citizenship**	
Male	175	United States	268
Female	115	Foreign nation	22
Race/ethnicity		**Employer**	
American Indian	1	Army	171
Asian	29	Navy	29
Black	12	Marine Corps	0
Hispanic	12	Air Force	22
White	236	Defense Agency	68
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			**Number of employees, by degree level**			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Microbiology	130	33	27	70	0
Second	Biology, General	47	27	13	7	0
Third	Biochemistry	14	2	0	12	0
Fourth	Medical Laboratory Tech.	12	9	1	2	0
	Other fields	77	19	17	41	0
	Nondegreed	10	0	0	0	10
	Unknown	0	0	0	0	0

OCCUPATION: 00403 – MICROBIOLOGY
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Nondegreed
Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD employment

Average years since degree

Year of inventory
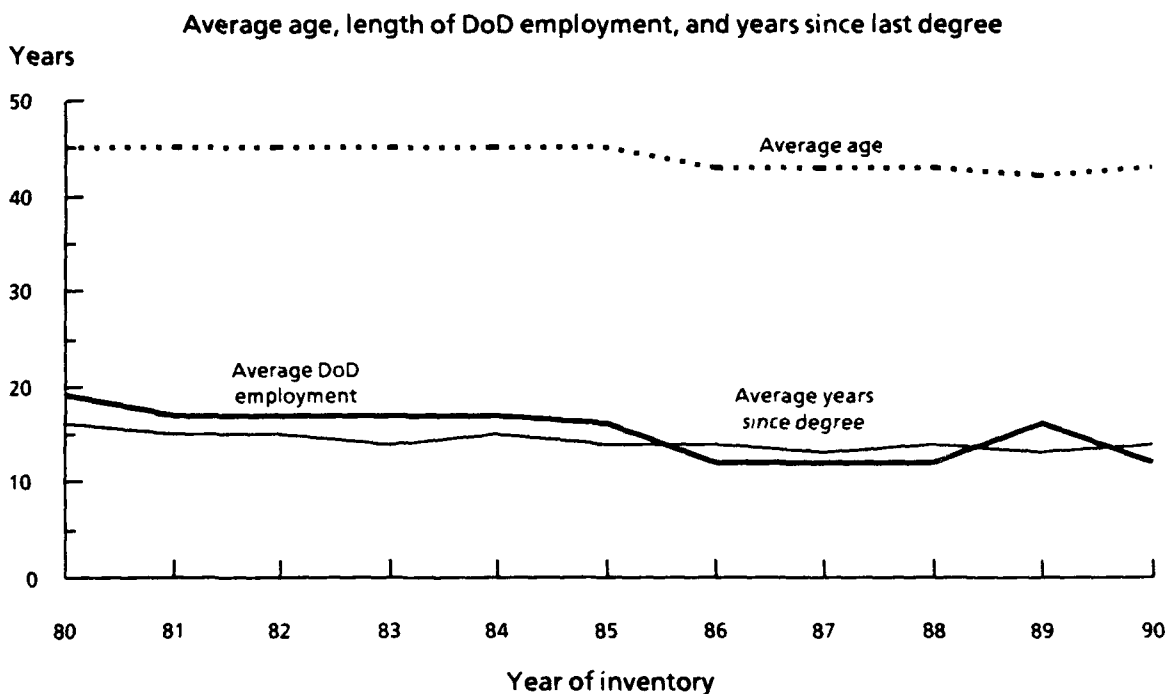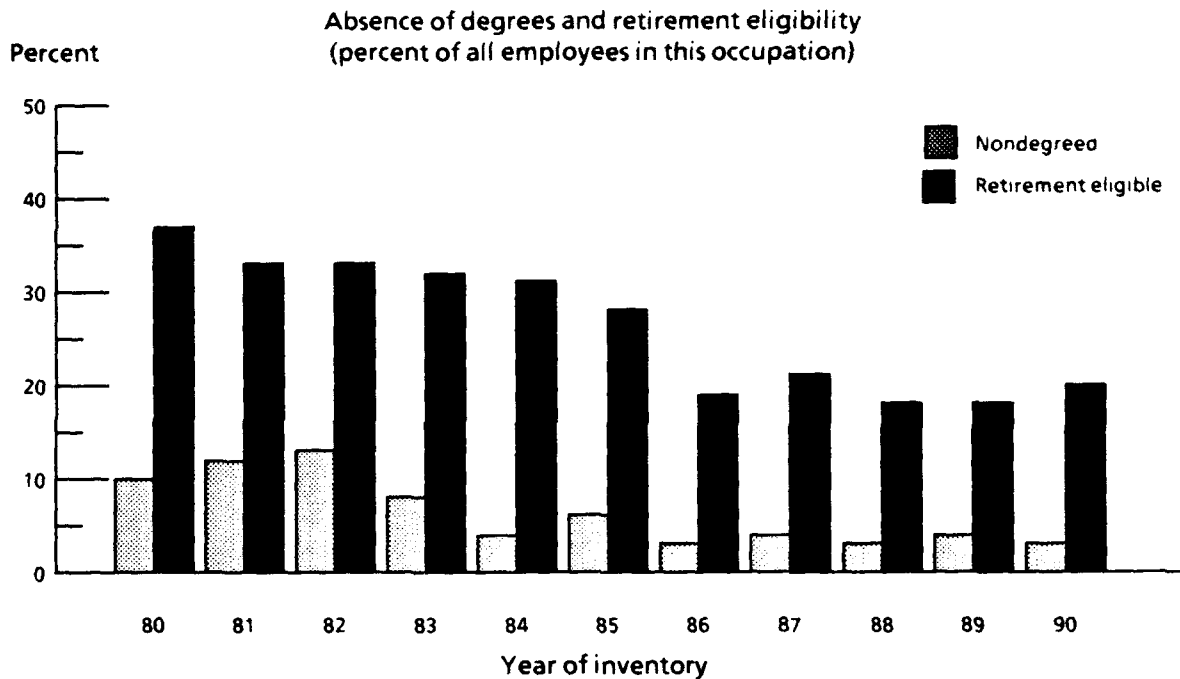
OCCUPATION: 00405 – PHARMACOLOGY

1990 Employee Profile
DoD total employed: 42

Selected characteristics			
Gender		**Citizenship**	
Male	36	United States	41
Female	6	Foreign nation	1
Race/ethnicity		**Employer**	
American Indian	0	Army	29
Asian	9	Navy	1
Black	0	Marine Corps	0
Hispanic	0	Air Force	0
White	32	Defense Agency	12
Other	1	Unknown	0

Academic degree backgrounds						
Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Pharmacology	21	0	2	19	0
Second	Physiology	5	0	0	5	0
Third	Pharmacy	4	0	0	4	0
Fourth	Biochemistry	3	0	0	3	0
	Other fields	8	1	0	7	0
	Nondegreed	1	0	0	0	1
	Unknown	0	0	0	0	0

OCCUPATION: 00405 – PHARMACOLOGY
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD employment

Average years since degree

Year of inventory
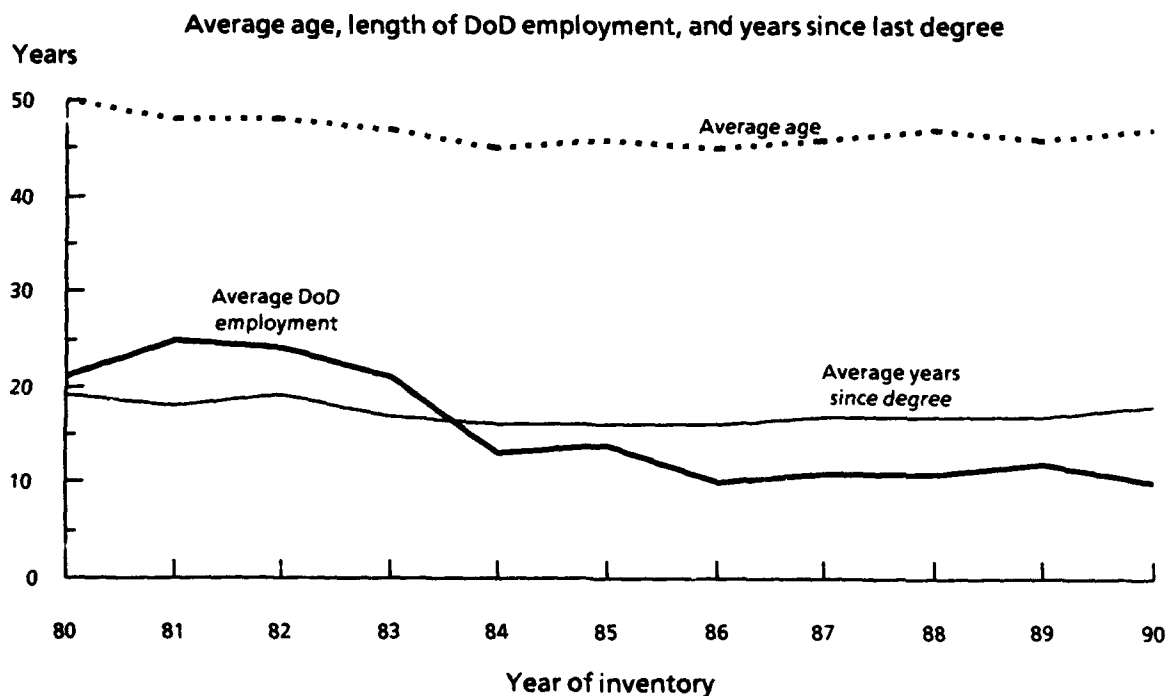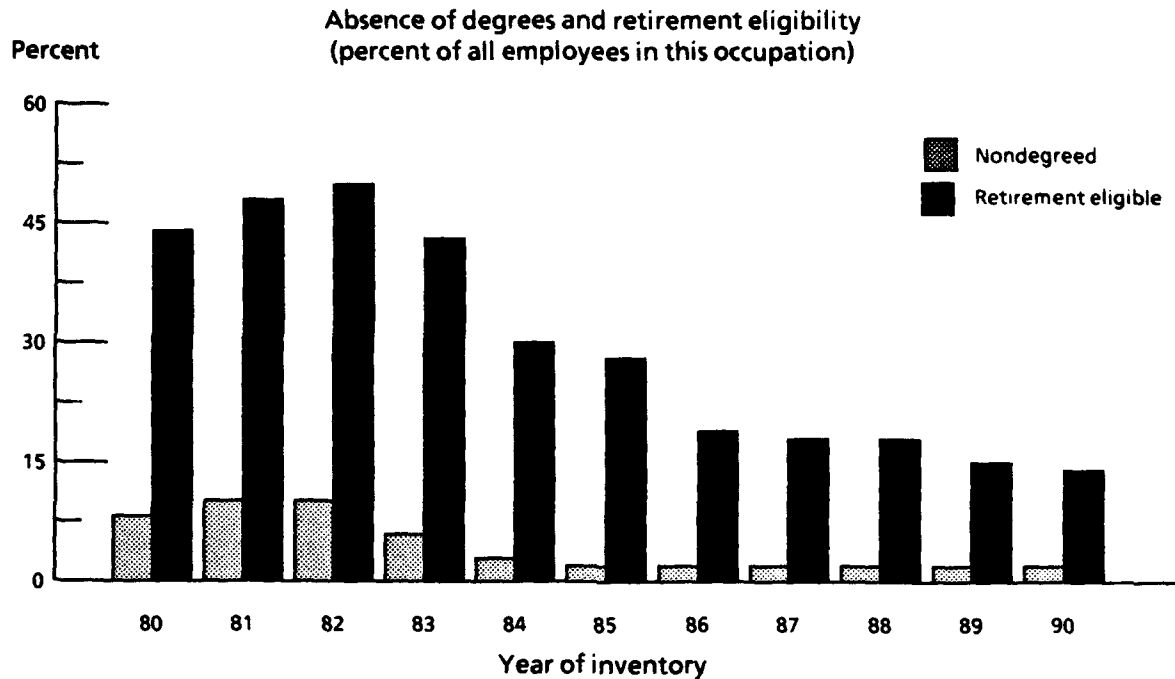
OCCUPATION: 00406 – AGRICULTURAL EXTENSION

1990 Employee Profile
DoD total employed: 1

Selected characteristics			
Gender		**Citizenship**	
Male	1	United States	1
Female	0	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	0	Army	1
Asian	0	Navy	0
Black	0	Marine Corps	0
Hispanic	0	Air Force	0
White	1	Defense Agency	0
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			**Number of employees, by degree level**			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Forestry	1	1	0	0	0
	Other fields	0	0	0	0	0
	Nondegreed	0	0	0	0	0
	Unknown	0	0	0	0	0

OCCUPATION: 00406 – AGRICULTURAL EXTENSION
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Nondegreed

Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD
employment

Year of inventory
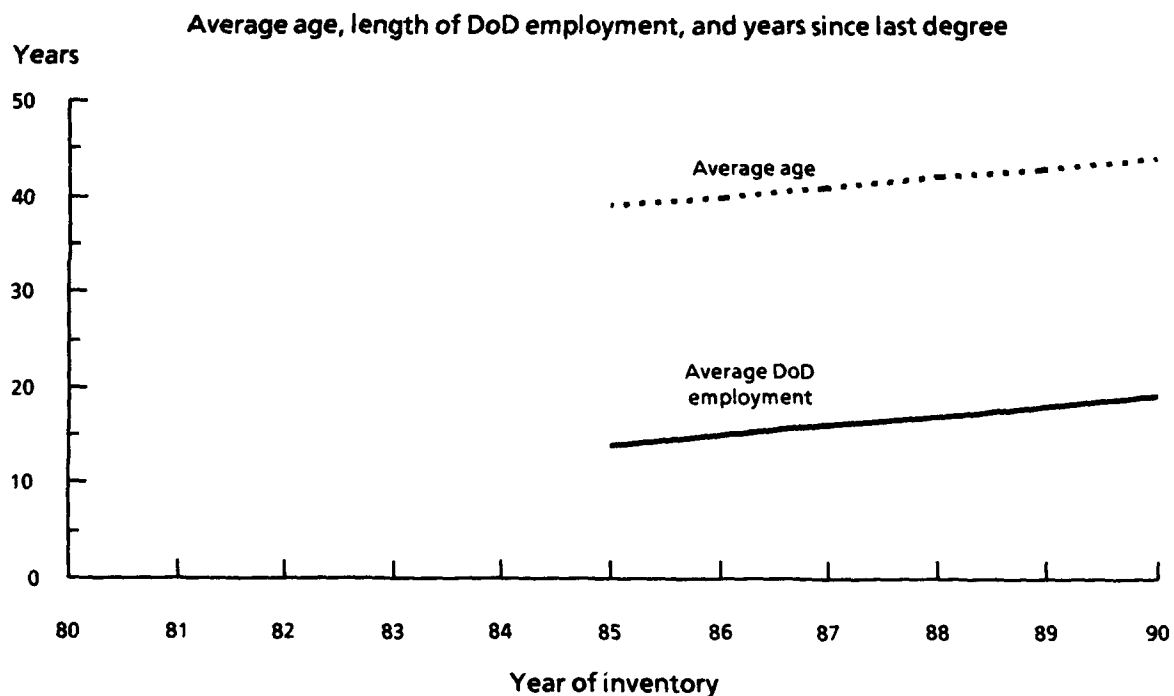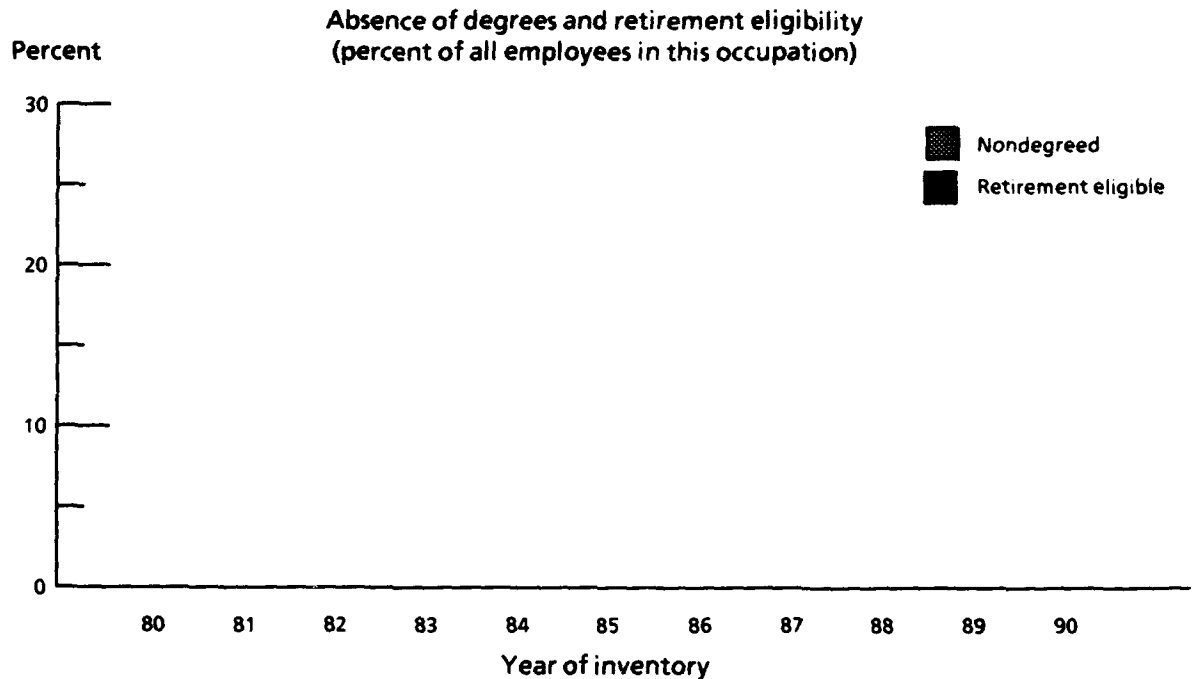
OCCUPATION: 00408 – ECOLOGY

1990 Employee Profile
DoD total employed: 129

Selected characteristics

Gender		Citizenship	
Male	101	United States	129
Female	28	Foreign nation	0

Race/ethnicity		Employer	
American Indian	0	Army	117
Asian	0	Navy	9
Black	2	Marine Corps	2
Hispanic	2	Air Force	1
White	125	Defense Agency	0
Other	0	Unknown	0

Academic degree backgrounds

Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Biology, General	38	25	11	2	0
Second	Ecology	26	5	16	5	0
Third	Zoology, General	12	3	6	3	0
Fourth	Forestry	11	8	3	0	0
	Other fields	41	20	15	6	0
	Nondegreed	1	0	0	0	1
	Unknown	0	0	0	0	0

OCCUPATION: 00408 – ECOLOGY
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD employment

Average years since degree

Year of inventory
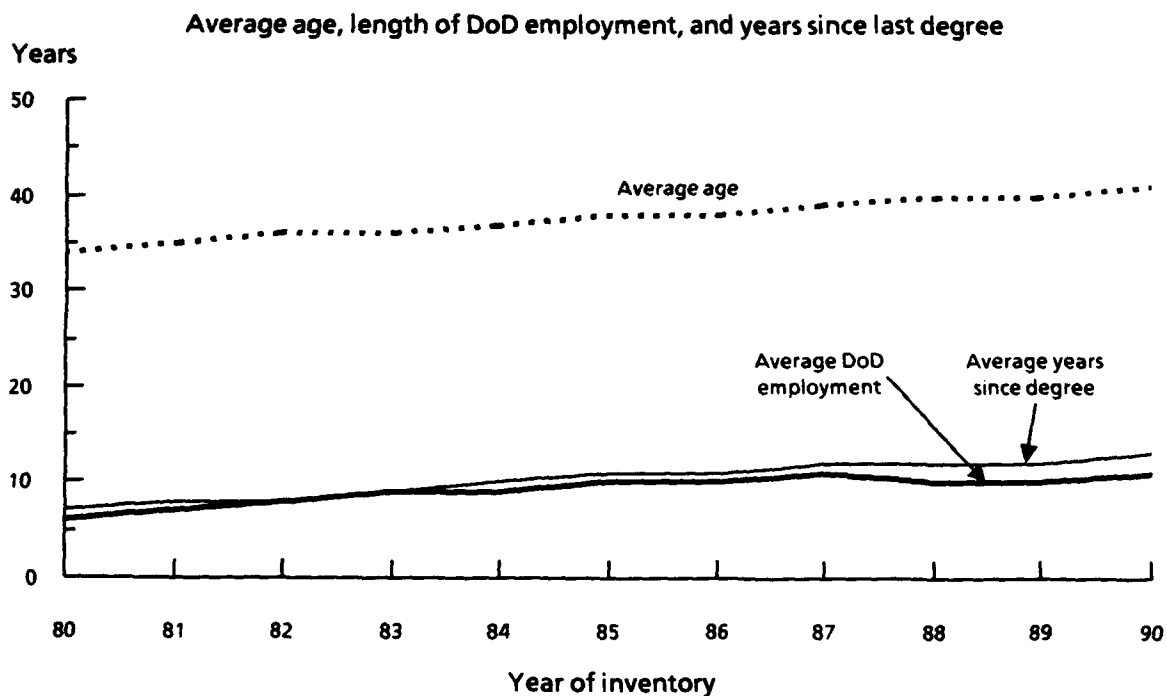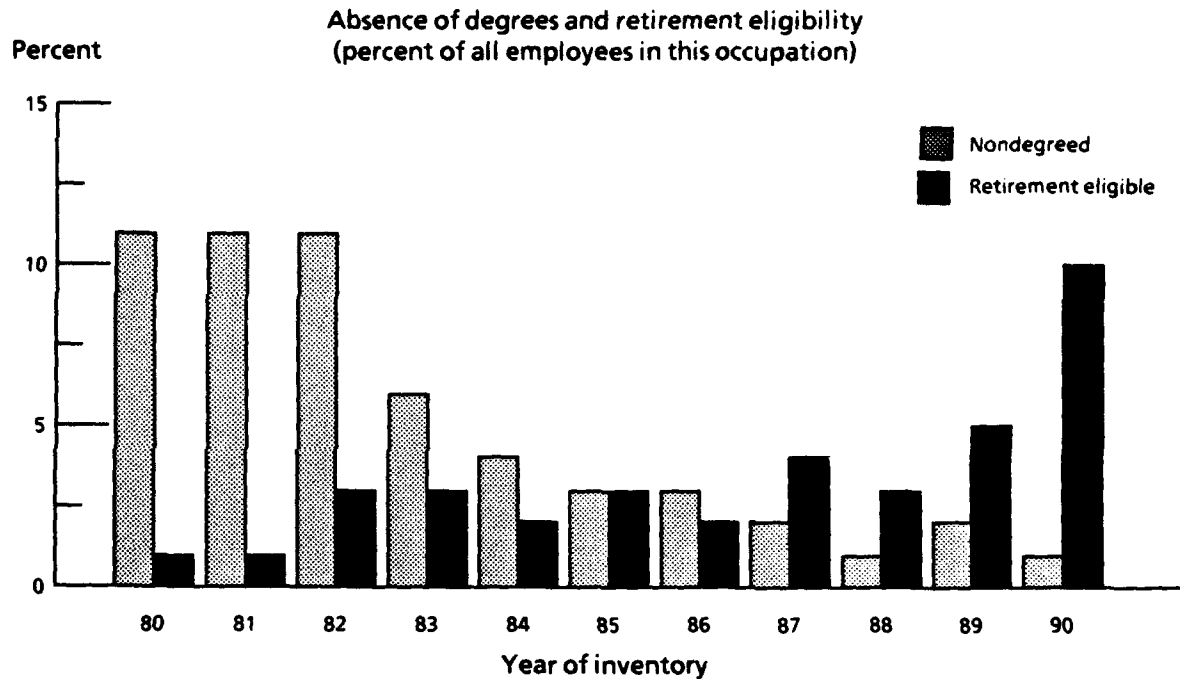
OCCUPATION: 00410 – ZOOLOGY

1990 Employee Profile
DoD total employed: 7

Selected characteristics			
Gender		**Citizenship**	
Male	5	United States	7
Female	2	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	0	Army	6
Asian	0	Navy	1
Black	1	Marine Corps	0
Hispanic	0	Air Force	0
White	6	Defense Agency	0
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			**Number of employees, by degree level**			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Zoology, General	3	0	2	1	0
Second	Biology, General	1	0	1	0	0
Third	Marine Biology	1	0	1	0	0
	Other fields	1	0	0	1	0
	Nondegreed	1	0	0	0	1
	Unknown	0	0	0	0	0

OCCUPATION: 00410 – ZOOLOGY
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Nondegreed

Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD
employment

Average years
since degree

Year of inventory
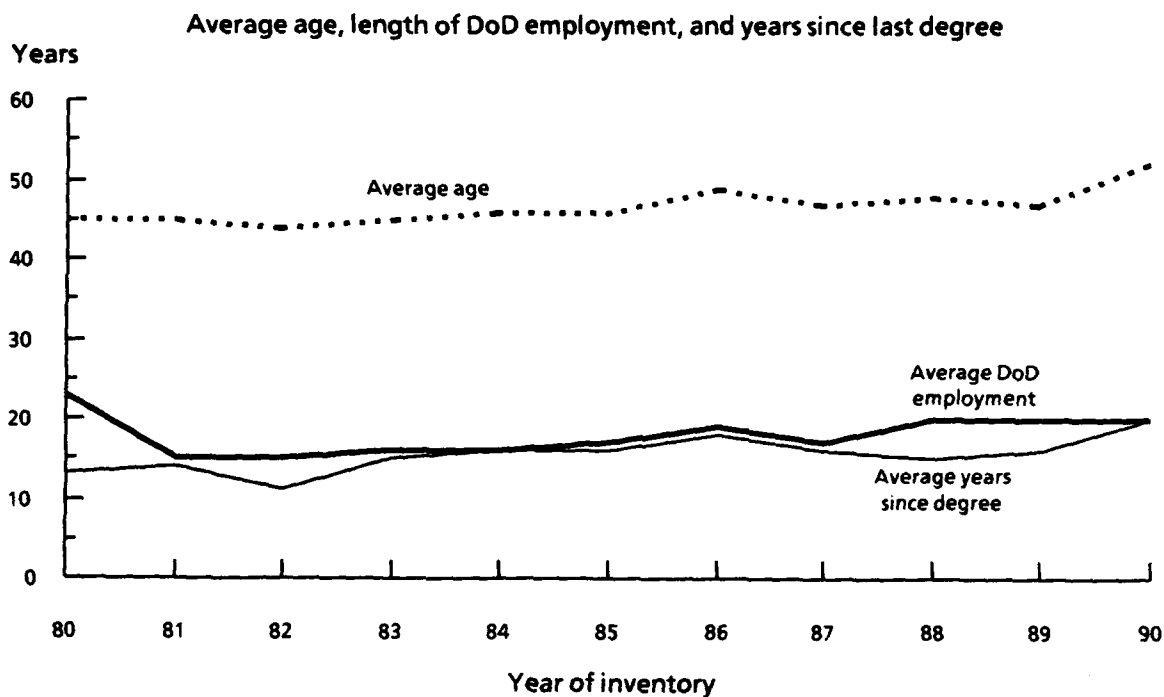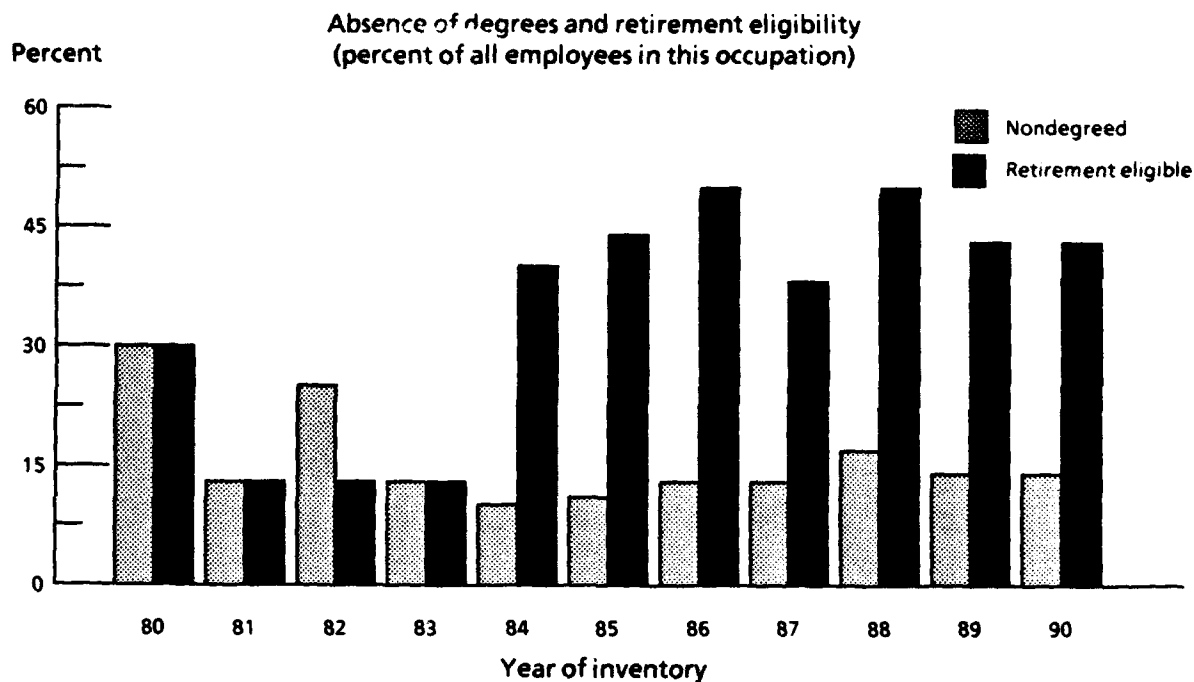
OCCUPATION: 00413 – PHYSIOLOGY

1990 Employee Profile
DoD total employed: 157

Selected characteristics			
Gender		Citizenship	
Male	122	United States	157
Female	35	Foreign nation	0
Race/ethnicity		Employer	
American Indian	0	Army	68
Asian	8	Navy	32
Black	7	Marine Corps	0
Hispanic	2	Air Force	27
White	140	Defense Agency	30
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Physiology	75	1	8	66	0
Second	Biology, General	18	5	2	11	0
Third	Zoology, General	7	0	0	7	0
Fourth	Psychology, General	5	0	1	4	0
	Other fields	51	5	17	29	0
	Nondegreed	1	0	0	0	1
	Unknown	0	0	0	0	0

OCCUPATION: 00413 – PHYSIOLOGY
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD employment

Average years since degree

Year of inventory
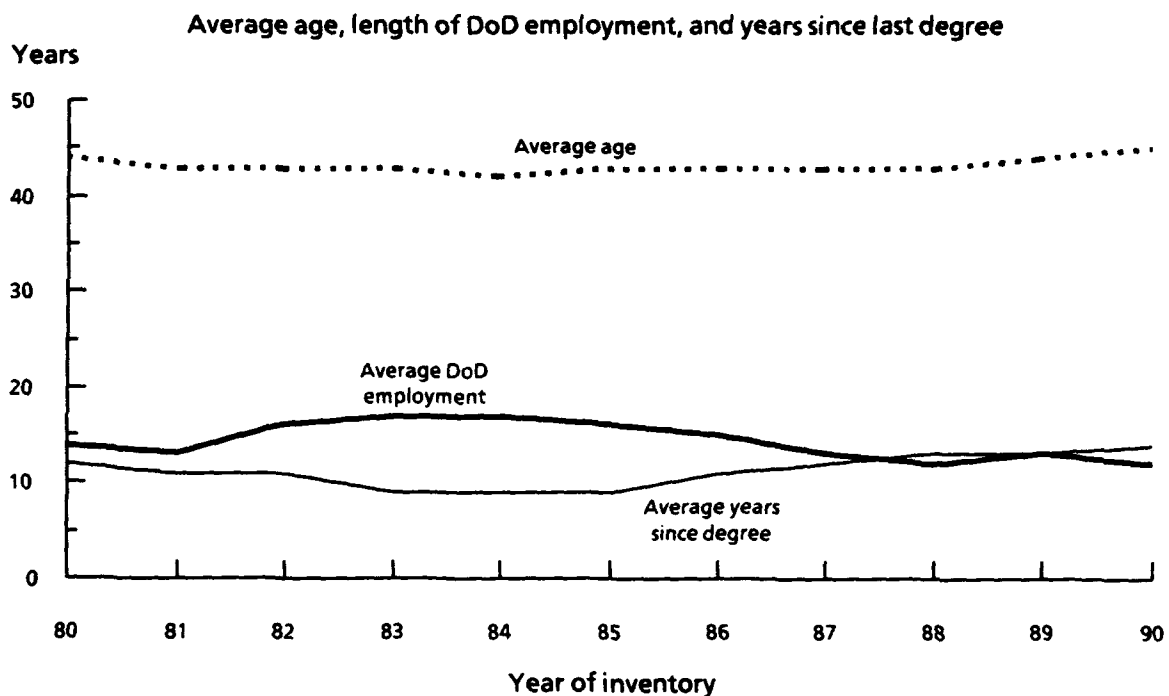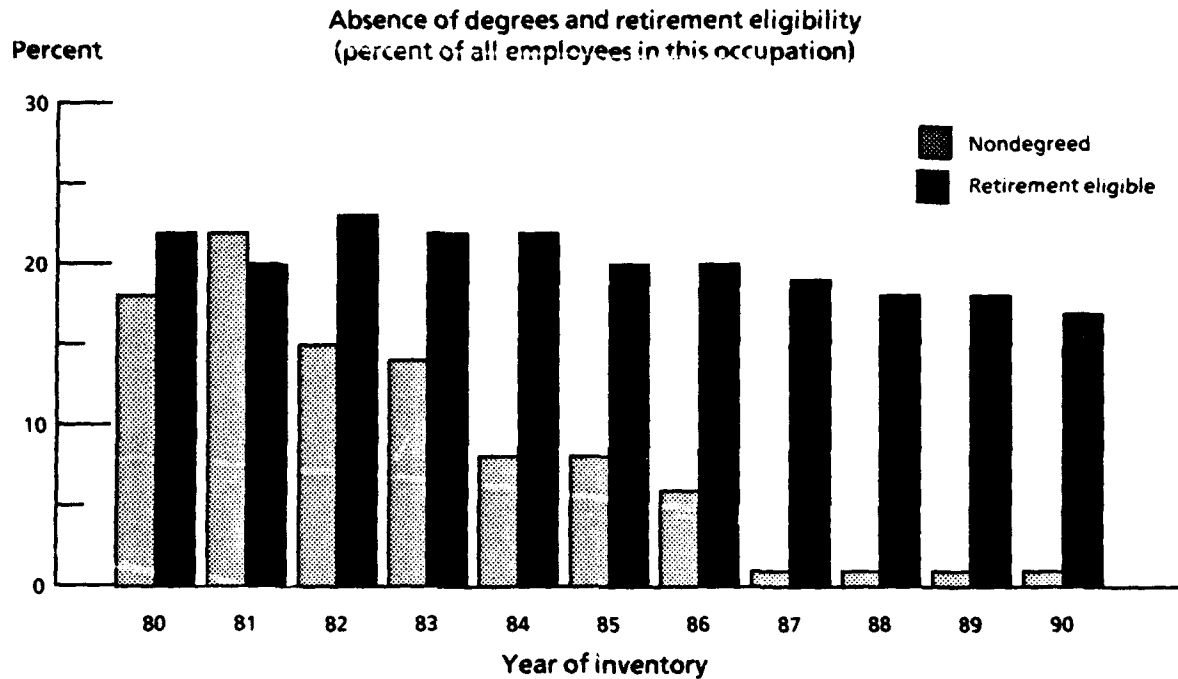
OCCUPATION: 00414 – ENTOMOLOGY

1990 Employee Profile
DoD total employed: 61

Selected characteristics

Gender		Citizenship	
Male	60	United States	61
Female	1	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	0	Army	37
Asian	3	Navy	18
Black	0	Marine Corps	0
Hispanic	1	Air Force	5
White	57	Defense Agency	1
Other	0	Unknown	0

Academic degree backgrounds

Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Entomology	50	11	22	17	0
Second	Biology, General	5	3	0	2	0
Third	Zoology, General	2	1	0	1	0
	Other fields	2	2	0	0	0
	Nondegreed	2	0	0	0	2
	Unknown	0	0	0	0	0

OCCUPATION: 00414 – ENTOMOLOGY
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD employment

Average years since degree

Year of inventory
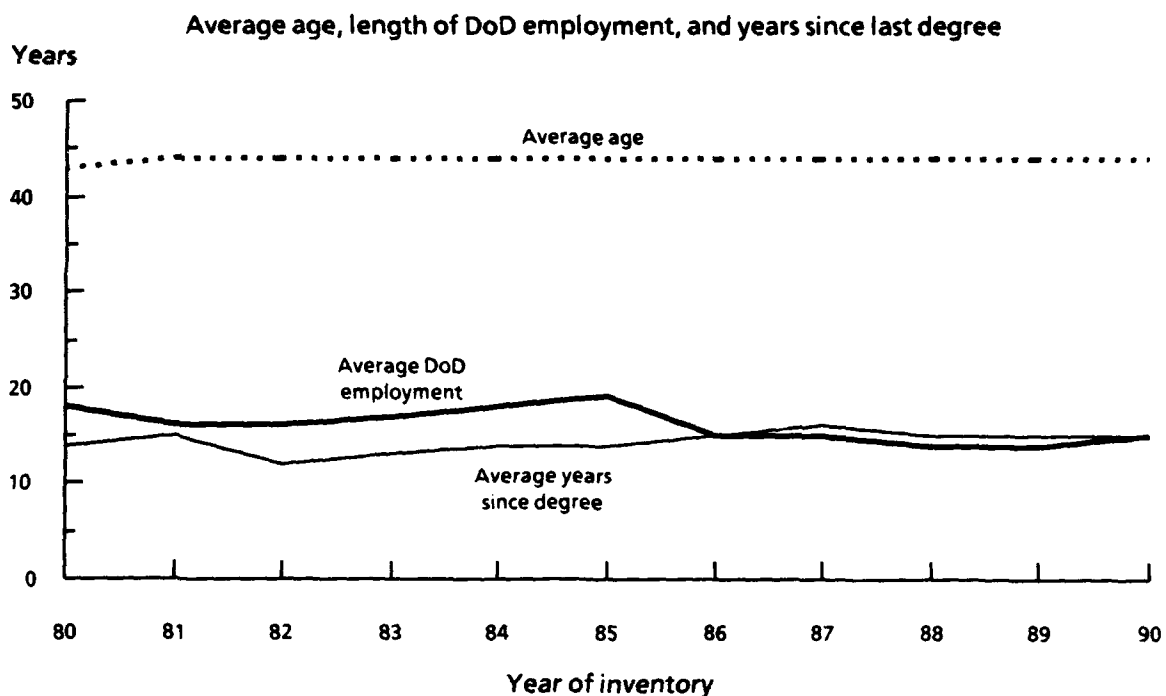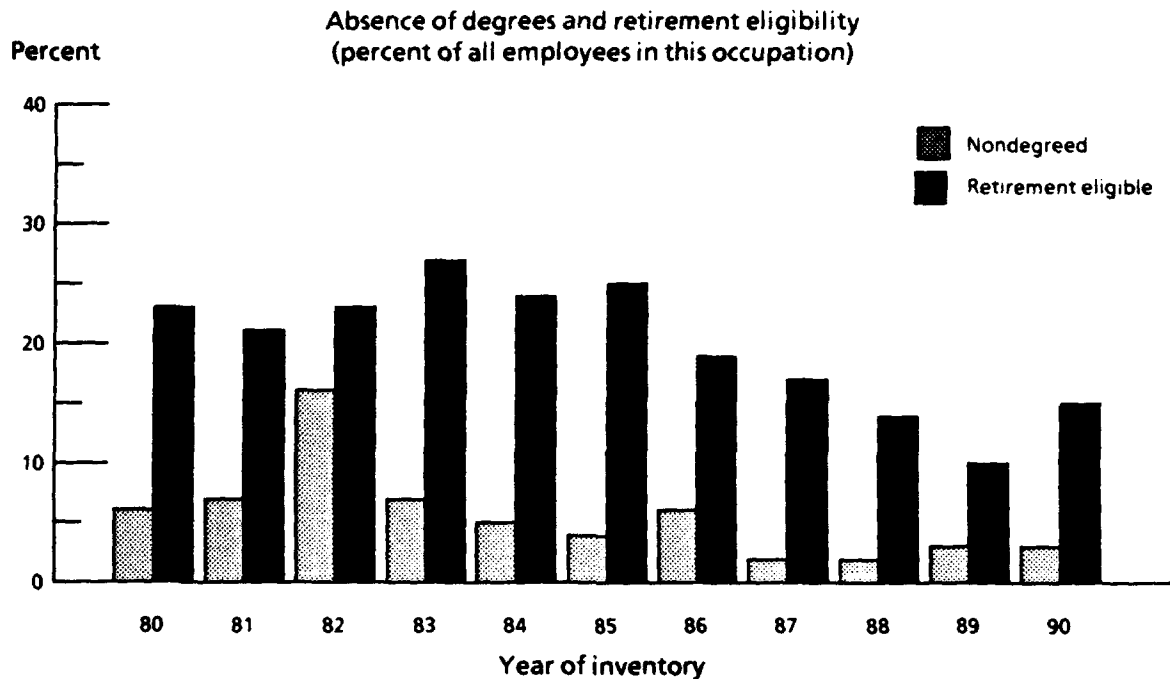
OCCUPATION: 00415 – TOXICOLOGY

1990 Employee Profile
DoD total employed: 19

Selected characteristics

Gender		Citizenship	
Male	15	United States	19
Female	4	Foreign nation	0
Race/ethnicity		Employer	
American Indian	0	Army	17
Asian	1	Navy	1
Black	1	Marine Corps	0
Hispanic	0	Air Force	1
White	17	Defense Agency	0
Other	0	Unknown	0

Academic degree backgrounds

Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Pharmacology	6	1	2	3	0
Second	Toxicology	3	1	0	2	0
Third	Biochemistry	2	0	0	2	0
	Other fields	7	1	2	4	0
	Nondegreed	1	0	0	0	1
	Unknown	0	0	0	0	0

OCCUPATION: 00415 – TOXICOLOGY
(continued)

1980 through 1990 trends

**Absence of degrees and retirement eligibility
(percent of all employees in this occupation)**

Percent

☐ Nondegreed
■ Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average years
since degree

Average DoD
employment

Year of inventory
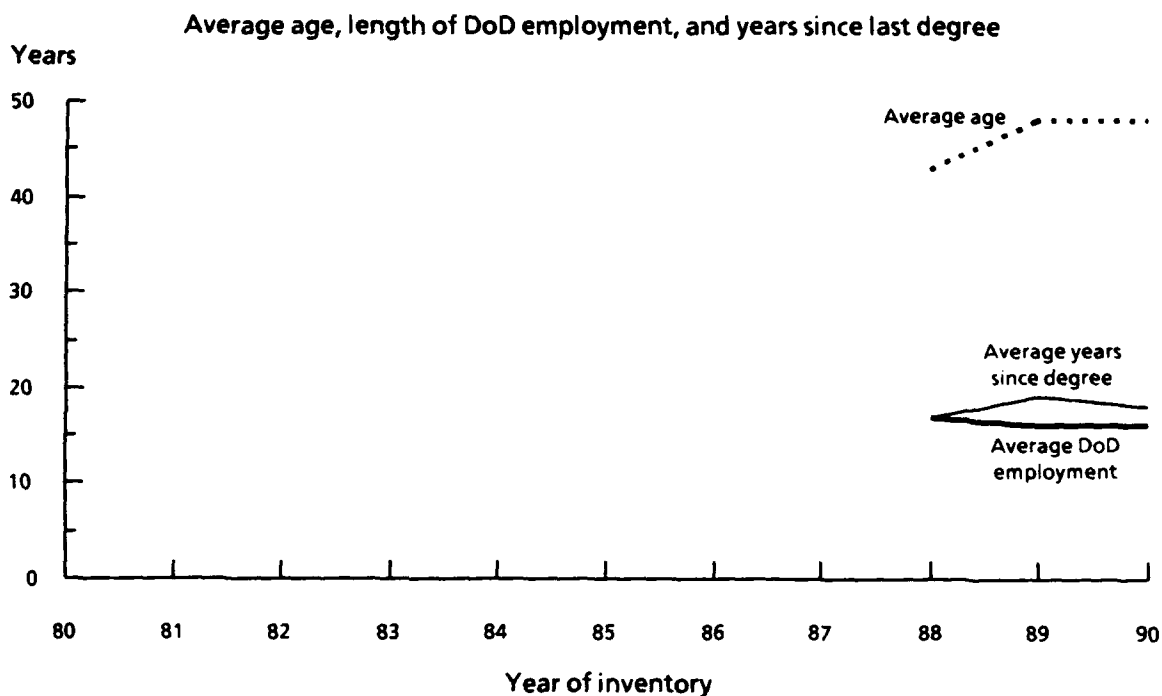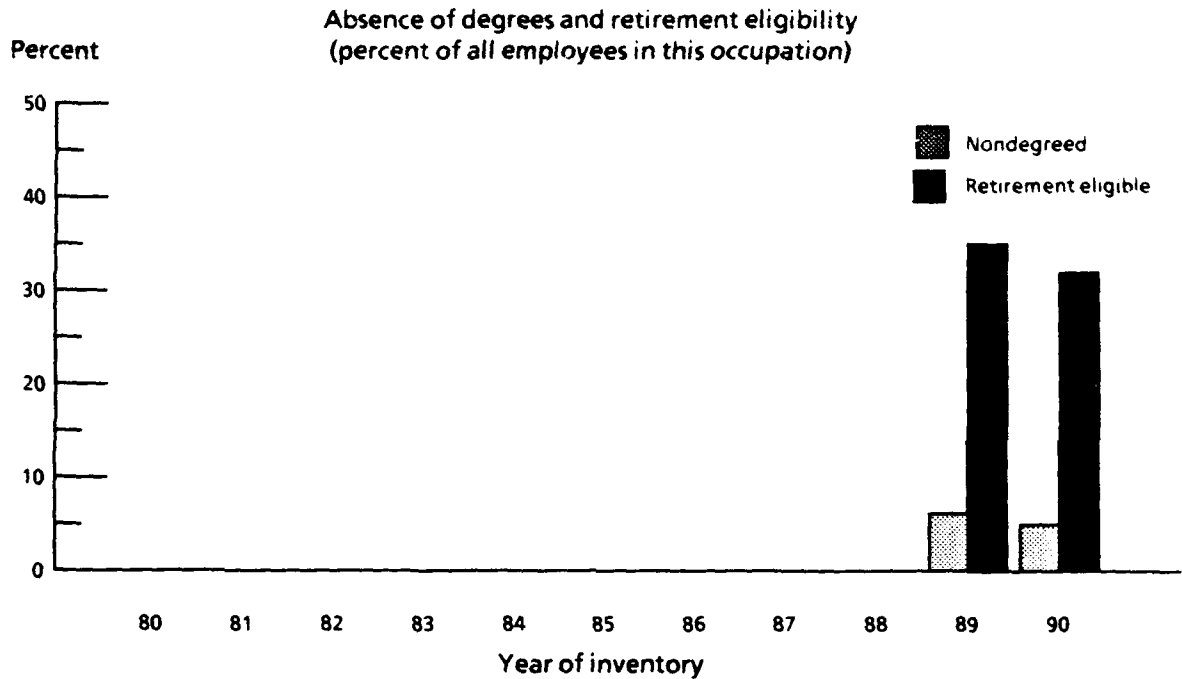
OCCUPATION: 00430 – BOTANY

1990 Employee Profile
DoD total employed: 12

Selected characteristics			
Gender		Citizenship	
Male	11	United States	12
Female	1	Foreign nation	0
Race/ethnicity		Employer	
American Indian	0	Army	12
Asian	0	Navy	0
Black	0	Marine Corps	0
Hispanic	0	Air Force	0
White	12	Defense Agency	0
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Botany, General	8	2	2	4	0
	Other fields	4	1	2	1	0
	Nondegreed	0	0	0	0	0
	Unknown	0	0	0	0	0

OCCUPATION: 00430 – BOTANY
(continued)

1980 through 1990 trends

Percent

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Years

Average age, length of DoD employment, and years since last degree

- Average age
- Average years since degree
- Average DoD employment

Year of inventory
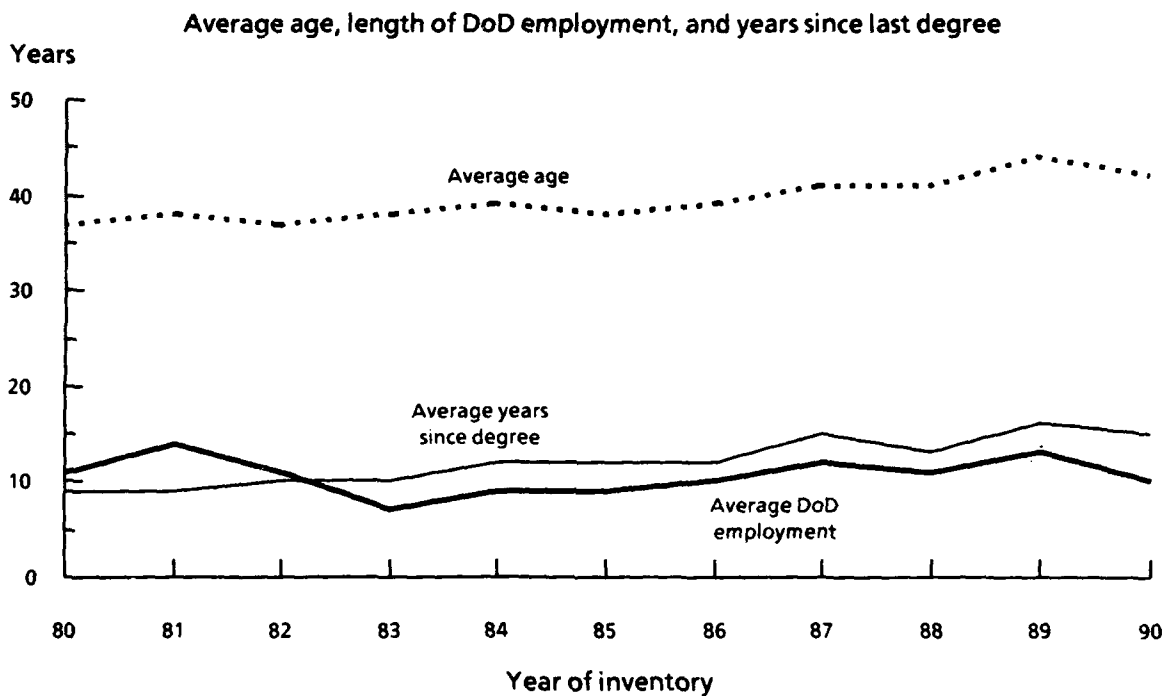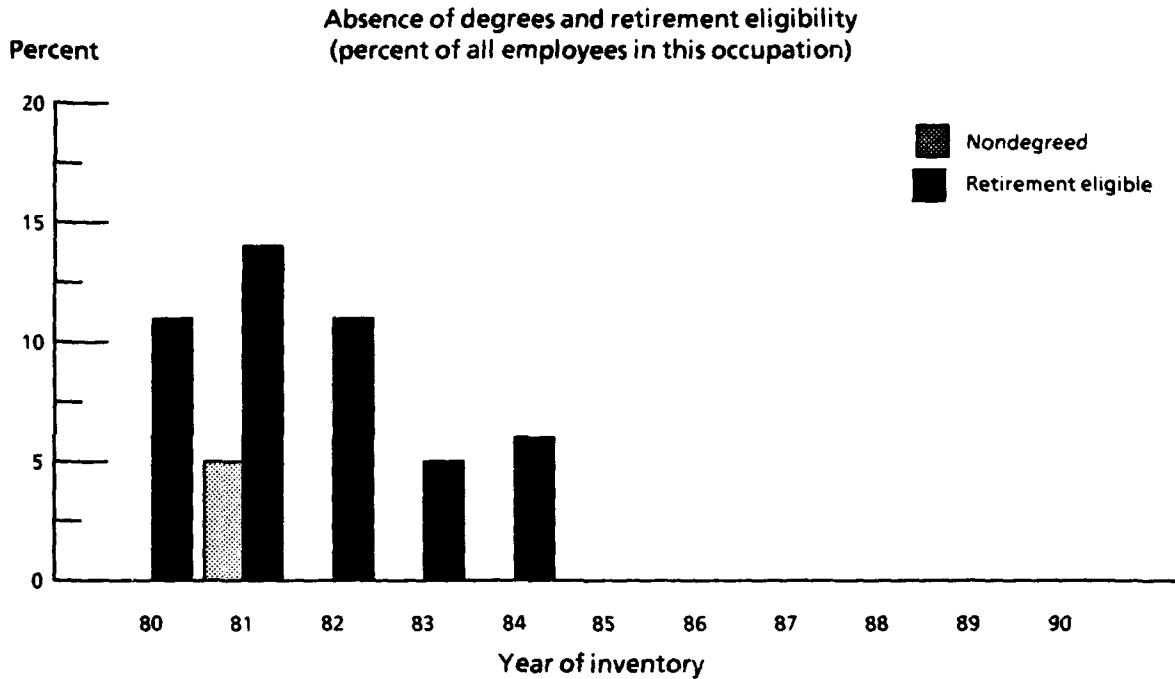
OCCUPATION: 00435 – PLANT PHYSIOLOGY

1990 Employee Profile
DoD total employed: 1

Selected characteristics			
Gender		**Citizenship**	
Male	0	United States	1
Female	1	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	0	Army	1
Asian	0	Navy	0
Black	0	Marine Corps	0
Hispanic	0	Air Force	0
White	1	Defense Agency	0
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			**Number of employees, by degree level**			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Other, Biology	1	0	1	0	0
	Other fields	0	0	0	0	0
	Nondegreed	0	0	0	0	0
	Unknown	0	0	0	0	0

OCCUPATION: 00435 – PLANT PHYSIOLOGY
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Nondegreed

Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average years
since degree

Average DoD
employment

Year of inventory
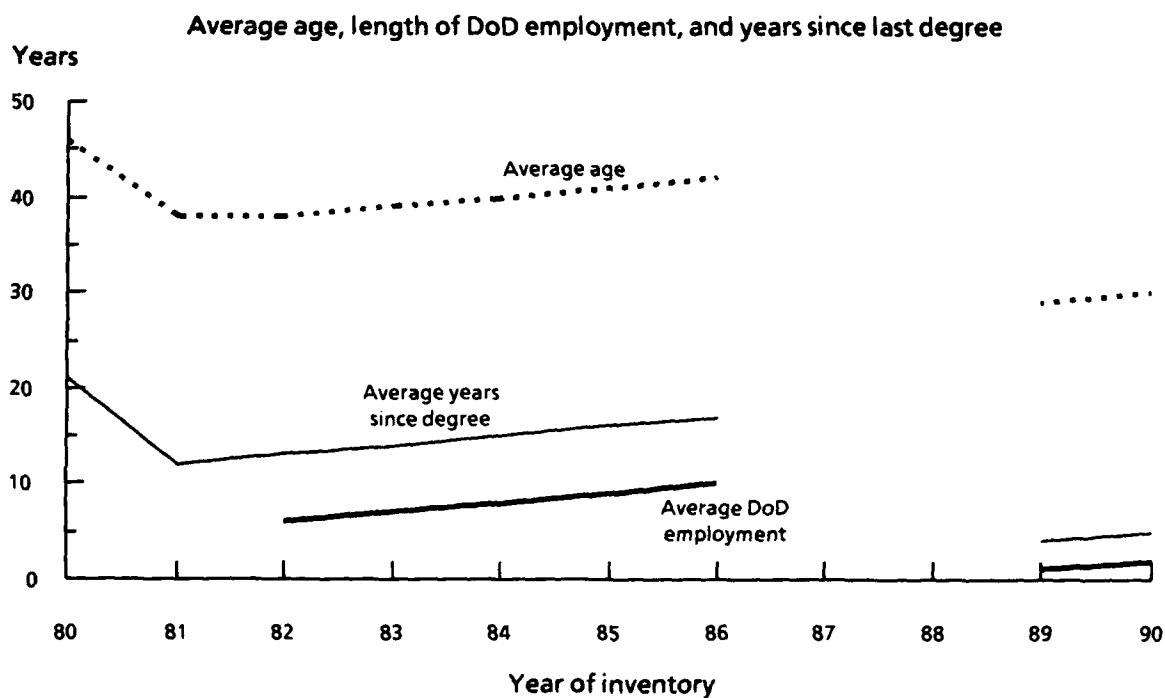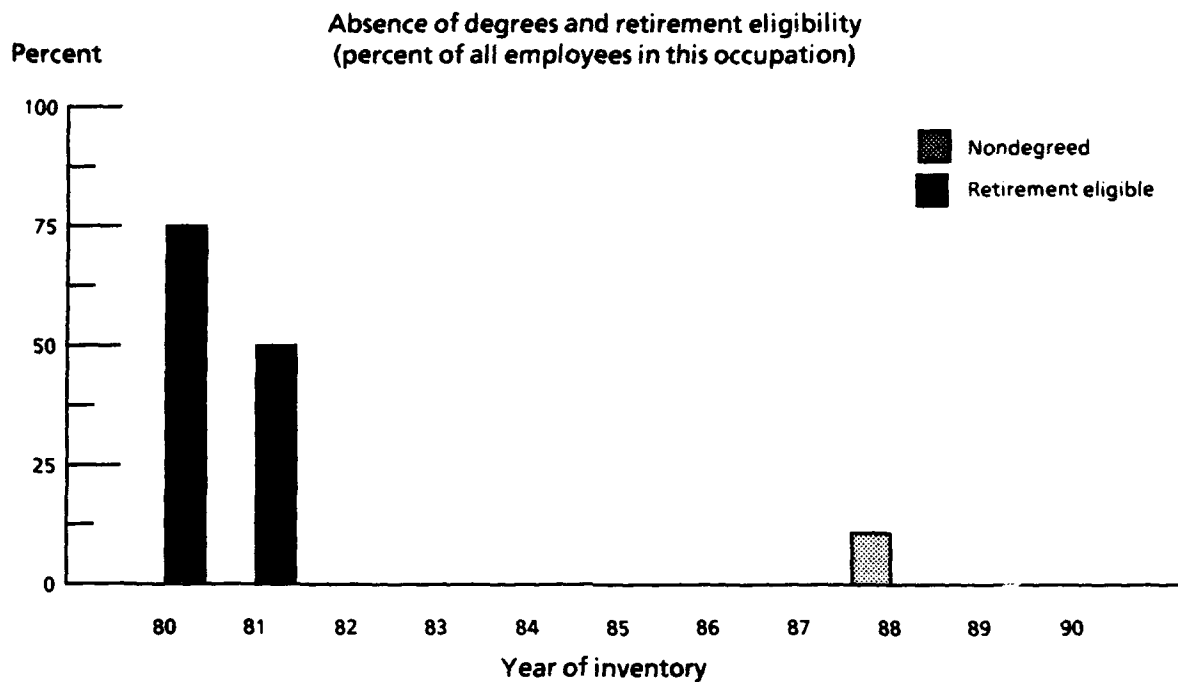
OCCUPATION: 00437 – HORTICULTURE

1990 Employee Profile
DoD total employed: 9

Selected characteristics			
Gender		Citizenship	
Male	6	United States	9
Female	3	Foreign nation	0
Race/ethnicity		Employer	
American Indian	0	Army	6
Asian	0	Navy	1
Black	0	Marine Corps	0
Hispanic	0	Air Force	1
White	9	Defense Agency	1
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Ornamental Horticulture	2	2	0	0	0
Second	Botany, General	2	2	0	0	0
	Other fields	4	3	1	0	0
	Nondegreed	1	0	0	0	1
	Unknown	0	0	0	0	0

OCCUPATION: 00437 – HORTICULTURE
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD employment

Average years since degree

Year of inventory
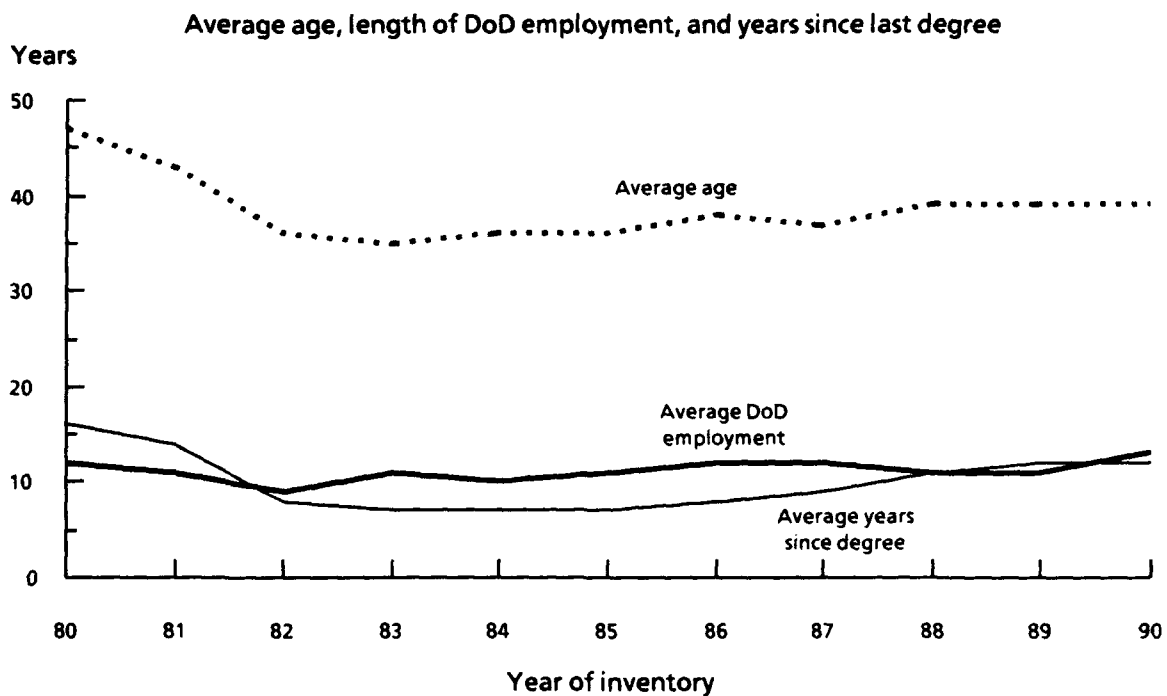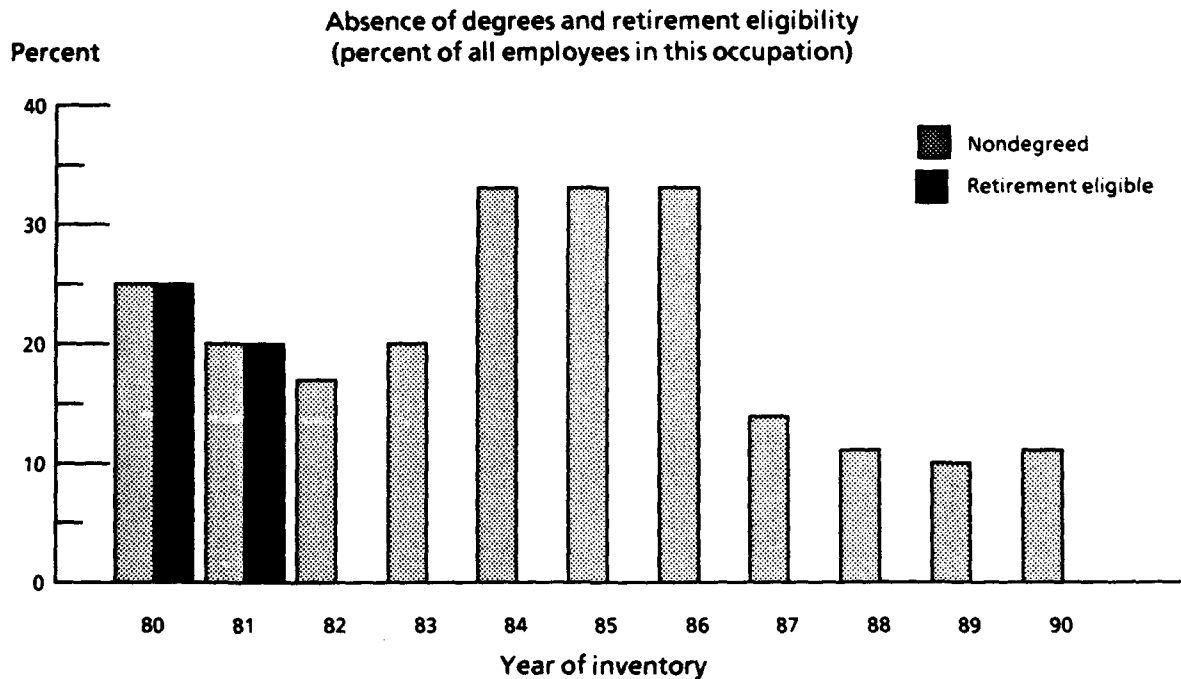
OCCUPATION: 00440 – GENETICS

1990 Employee Profile
DoD total employed: 1

Selected characteristics			
Gender		**Citizenship**	
Male	1	United States	1
Female	0	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	0	Army	0
Asian	0	Navy	1
Black	0	Marine Corps	0
Hispanic	0	Air Force	0
White	1	Defense Agency	0
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			**Number of employees, by degree level**			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Microbiology	1	0	0	1	0
	Other fields	0	0	0	0	0
	Nondegreed	0	0	0	0	0
	Unknown	0	0	0	0	0

OCCUPATION: 00440 – GENETICS
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Nondegreed
Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD
employment

Average years
since degree

Year of inventory
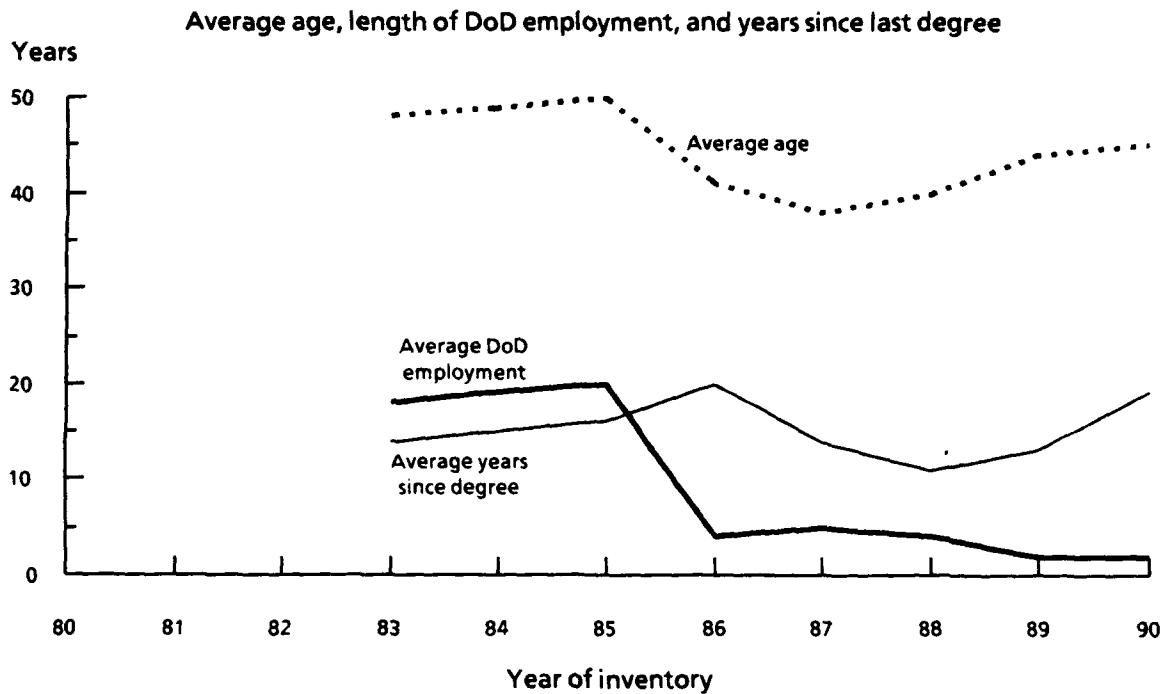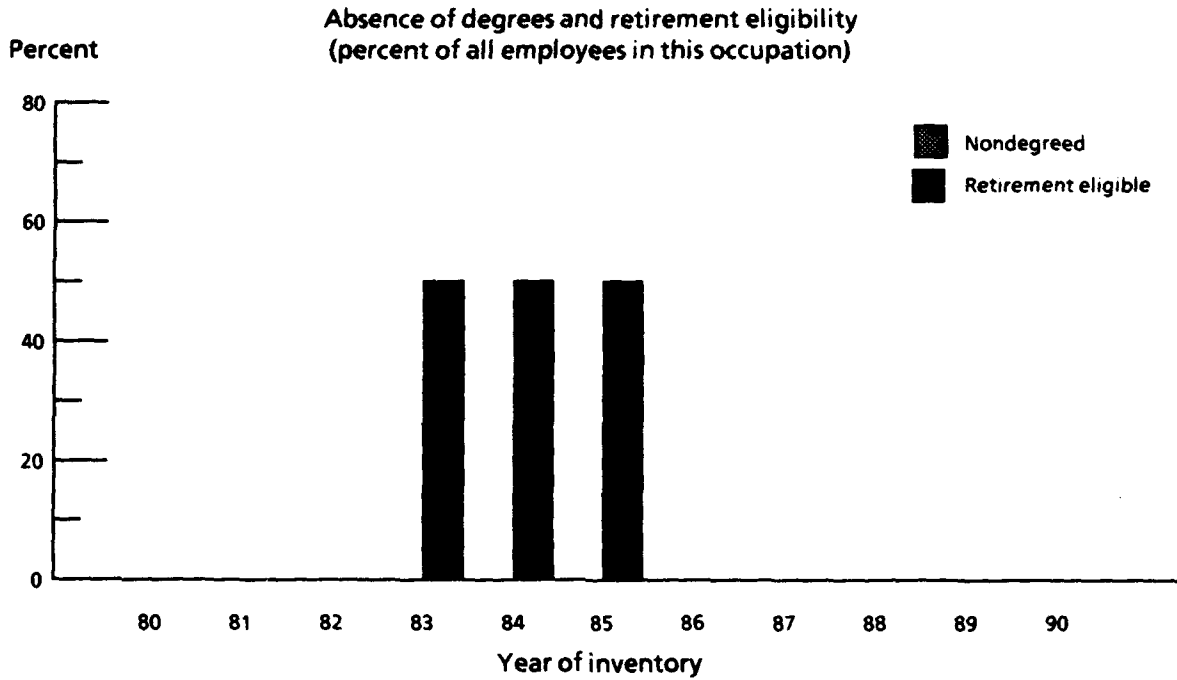
OCCUPATION: 00454 – RANGE CONSERVATION

1990 Employee Profile
DoD total employed: 12

Selected characteristics			
Gender		Citizenship	
Male	10	United States	12
Female	2	Foreign nation	0
Race/ethnicity		Employer	
American Indian	1	Army	10
Asian	0	Navy	0
Black	0	Marine Corps	1
Hispanic	0	Air Force	1
White	11	Defense Agency	0
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Range Management	5	5	0	0	0
Second	Wildlife Biology	2	1	1	0	0
	Other fields	4	2	2	0	0
	Nondegreed	1	0	0	0	1
	Unknown	0	0	0	0	0

OCCUPATION: 00454 – RANGE CONSERVATION
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD employment

Average years since degree

Year of inventory
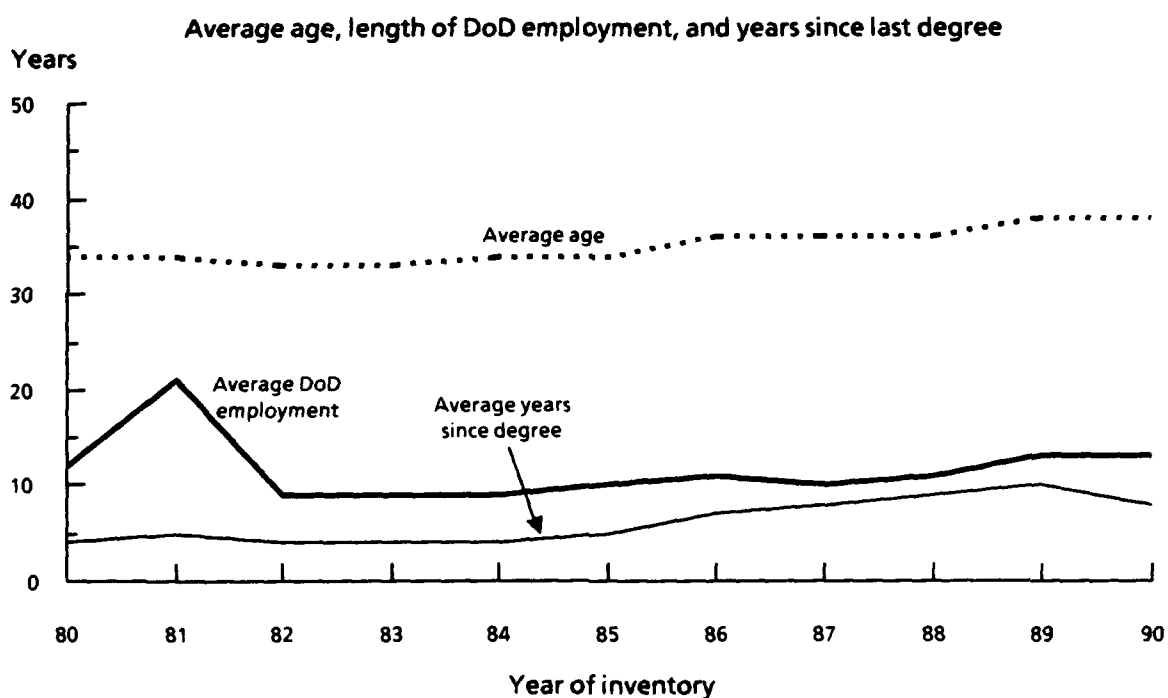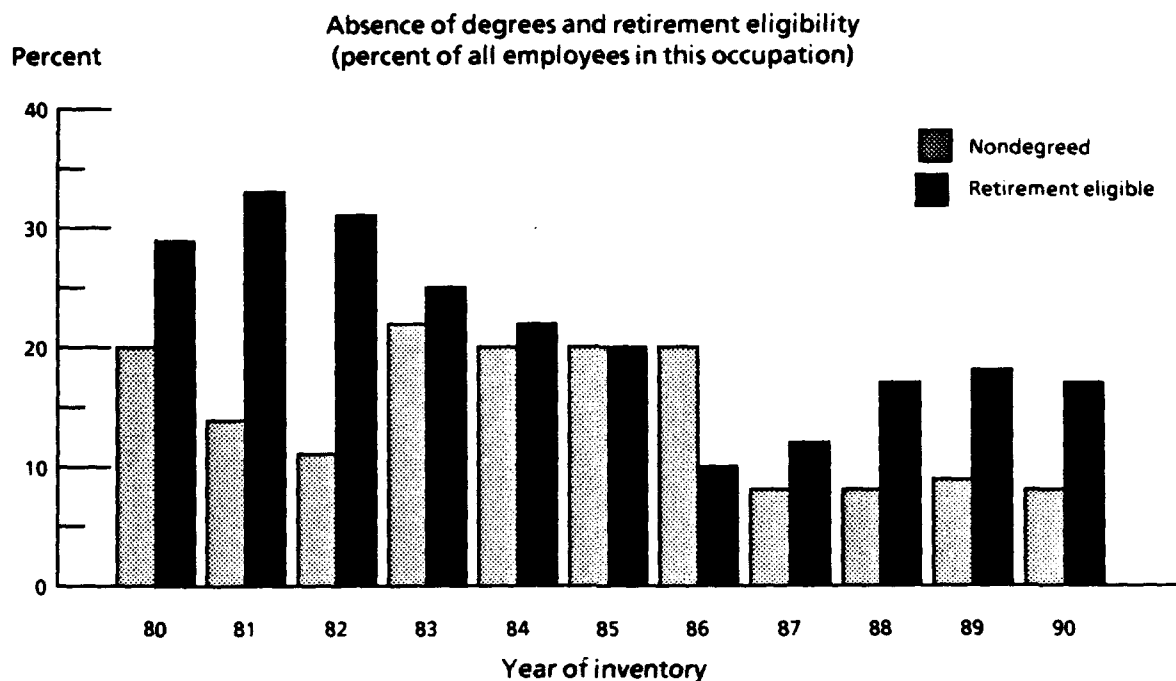
OCCUPATION: 00457 – SOIL CONSERVATION

1990 Employee Profile
DoD total employed: 18

Selected characteristics			
Gender		Citizenship	
Male	15	United States	18
Female	3	Foreign nation	0
Race/ethnicity		Employer	
American Indian	0	Army	3
Asian	0	Navy	14
Black	0	Marine Corps	1
Hispanic	0	Air Force	0
White	18	Defense Agency	0
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Forestry	3	1	2	0	0
Second	Range Management	3	3	0	0	0
Third	Soil Science	2	0	2	0	0
Fourth	Biology, General	2	2	0	0	0
Fifth	Natural Resources Mgmt.	2	2	0	0	0
	Other fields	5	5	0	0	0
	Nondegreed	1	0	0	0	1
	Unknown	0	0	0	0	0

OCCUPATION: 00457 – SOIL CONSERVATION
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Legend:
- Nondegreed
- Retirement eligible

X-axis: Year of inventory (80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90)
Y-axis: Percent (0 to 60)

Average age, length of DoD employment, and years since last degree

Y-axis: Years (0 to 50)

Lines: Average age, Average DoD employment, Average years since degree

X-axis: Year of inventory (80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90)

OCCUPATION: 00460 – FORESTRY

1990 Employee Profile
DoD total employed: 134

Selected characteristics			
Gender		**Citizenship**	
Male	132	United States	134
Female	2	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	0	Army	89
Asian	0	Navy	18
Black	0	Marine Corps	5
Hispanic	0	Air Force	18
White	134	Defense Agency	4
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Forestry	98	87	11	0	0
Second	Wildlife Biology	4	3	1	0	0
Third	Natural Resources Mgmt.	4	4	0	0	0
	Other fields	18	7	0	0	11
	Nondegreed	10	0	0	0	10
	Unknown	0	0	0	0	0

OCCUPATION: 00460 – FORESTRY
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend: ▨ Nondegreed ■ Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD employment

Average years since degree

Year of inventory
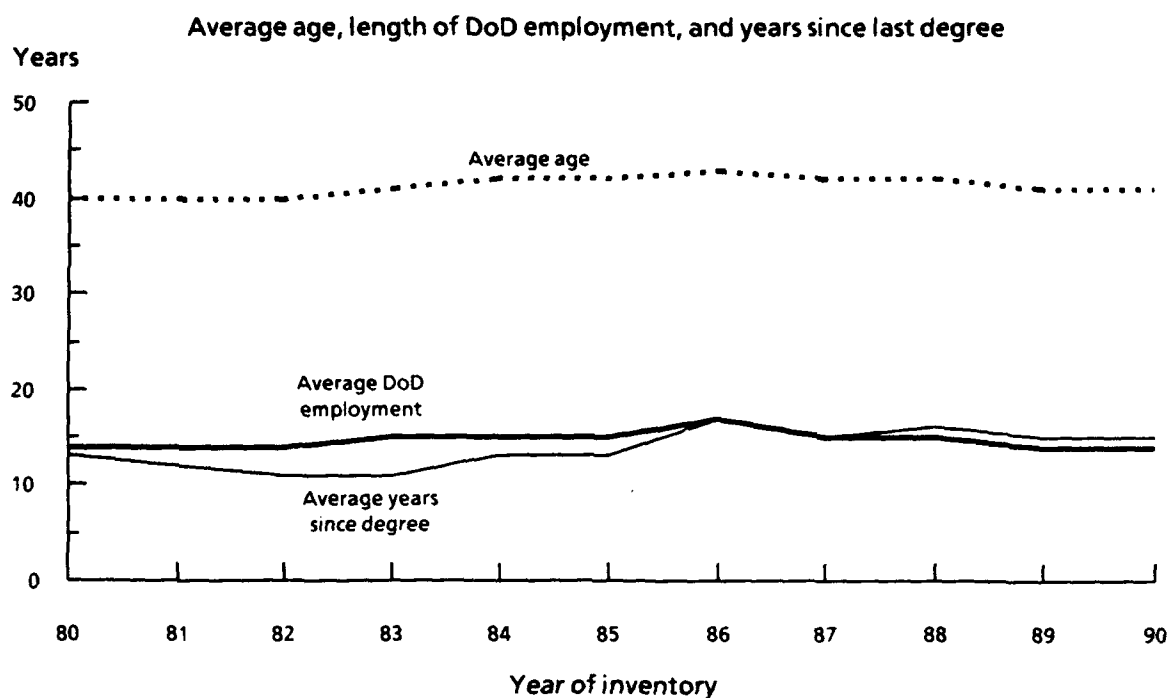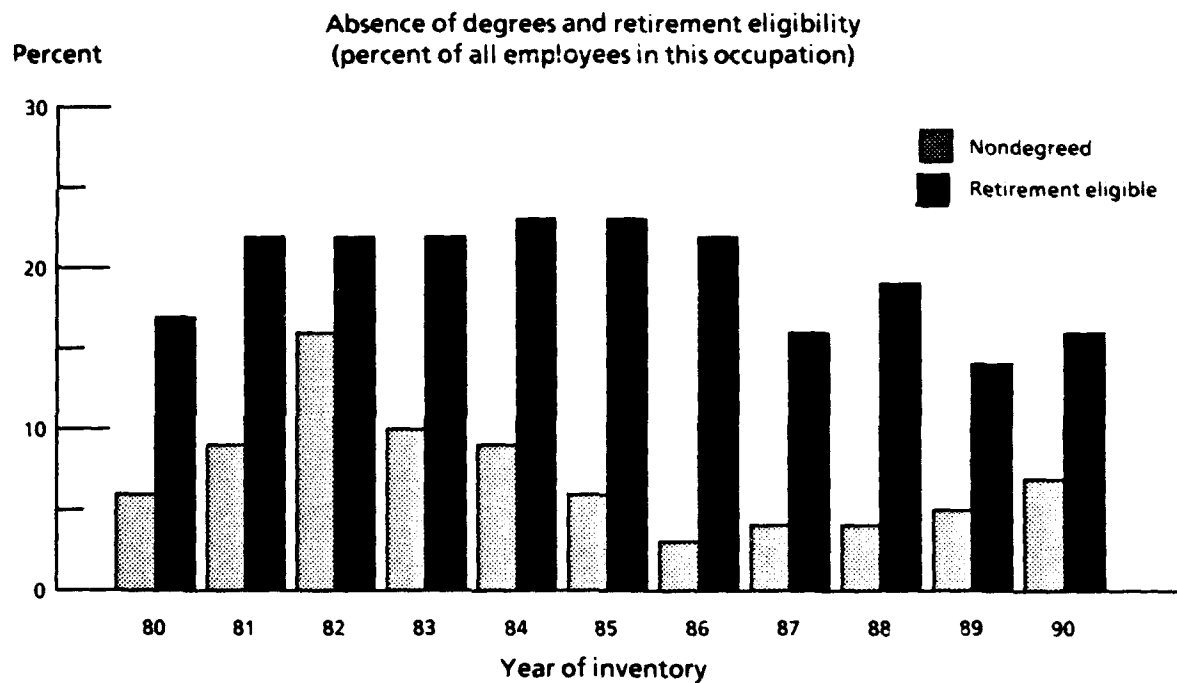
OCCUPATION: 00470 – SOIL SCIENCE

1990 Employee Profile
DoD total employed: 6

Selected characteristics			
Gender		Citizenship	
Male	6	United States	6
Female	0	Foreign nation	0
Race/ethnicity		Employer	
American Indian	0	Army	5
Asian	0	Navy	0
Black	0	Marine Corps	1
Hispanic	0	Air Force	0
White	6	Defense Agency	0
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Soil Science	3	0	1	2	0
	Other fields	3	1	0	2	0
	Nondegreed	0	0	0	0	0
	Unknown	0	0	0	0	0

OCCUPATION: 00470 – SOIL SCIENCE
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Nondegreed
Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD
employment

Average years
since degree

Year of inventory
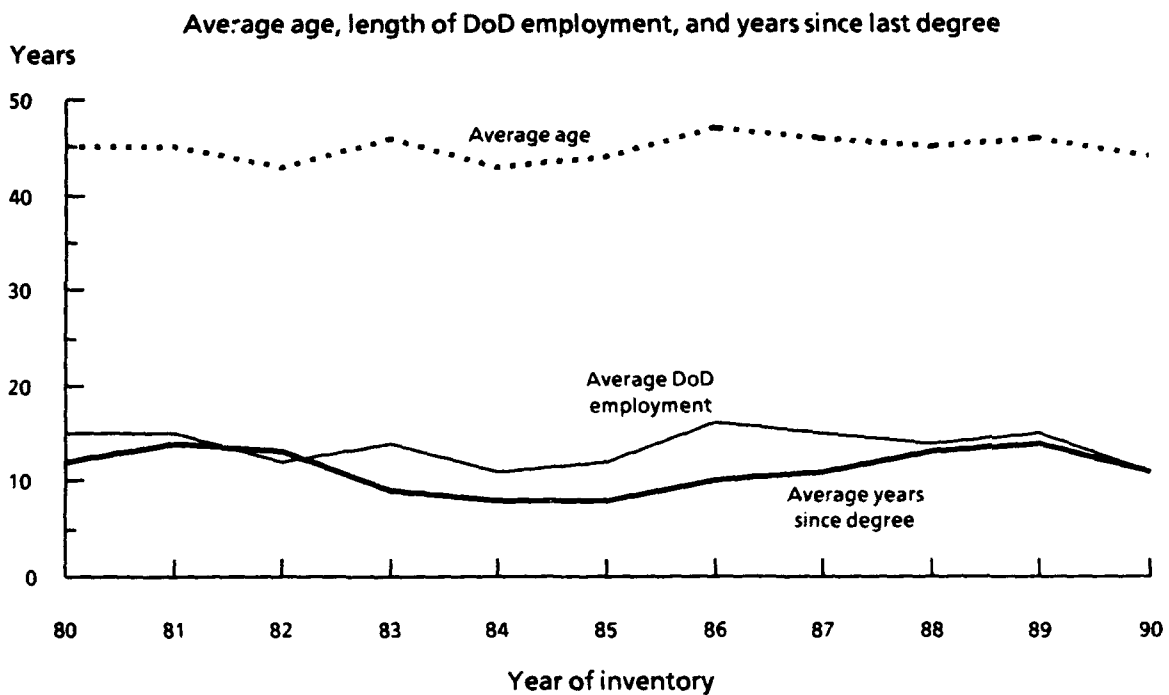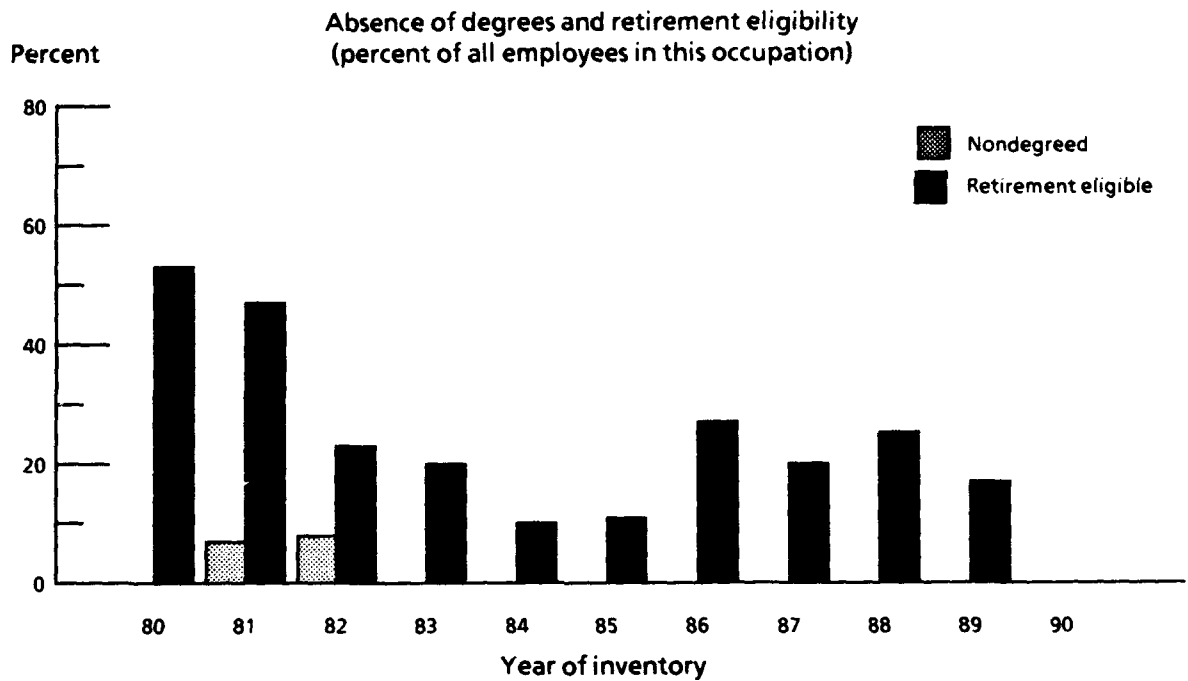
OCCUPATION: 00471 – AGRONOMY

1990 Employee Profile
DoD total employed: 45

Selected characteristics

Gender		Citizenship	
Male	45	United States	45
Female	0	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	0	Army	34
Asian	2	Navy	0
Black	2	Marine Corps	1
Hispanic	1	Air Force	10
White	40	Defense Agency	0
Other	0	Unknown	0

Academic degree backgrounds

Academic major			Number of employees, by degree level			
Incide..ce	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Agronomy	13	9	4	0	0
Second	Ornamental Horticulture	5	1	4	0	0
Third	Agriculture, General	4	3	1	0	0
Fourth	Forestry	3	2	1	0	0
	Other fields	18	8	7	3	0
	Nondegreed	2	0	0	0	2
	Unknown	0	0	0	0	0

OCCUPATION: 00471 – AGRONOMY
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD employment

Average years since degree

Year of inventory
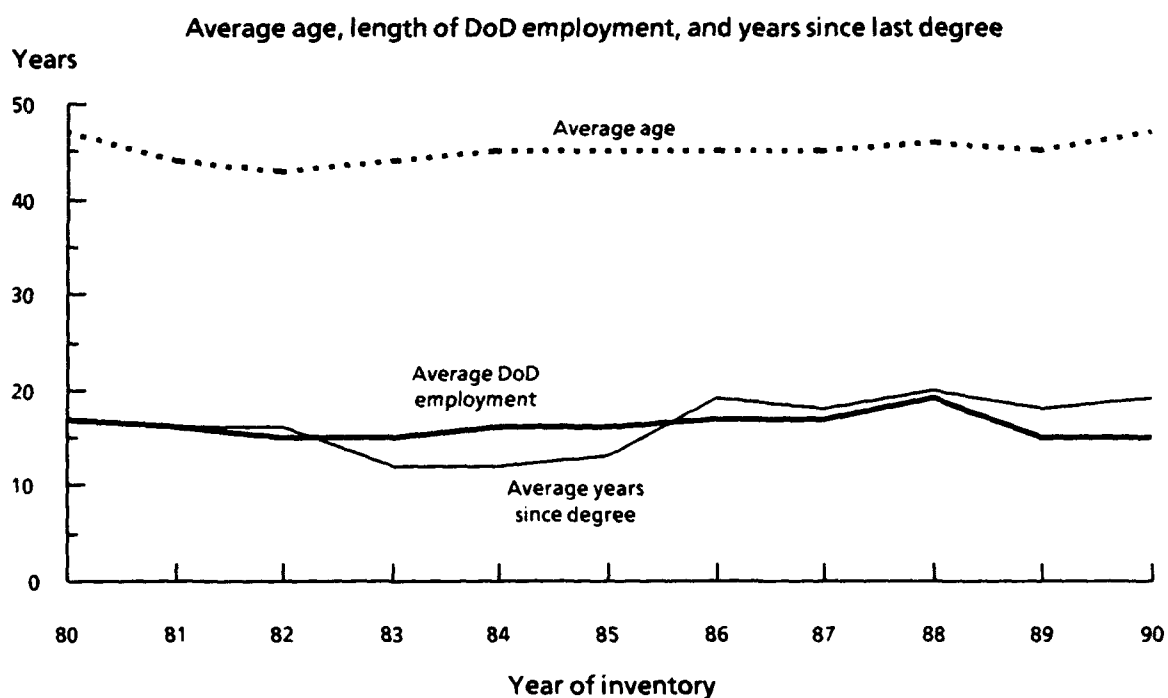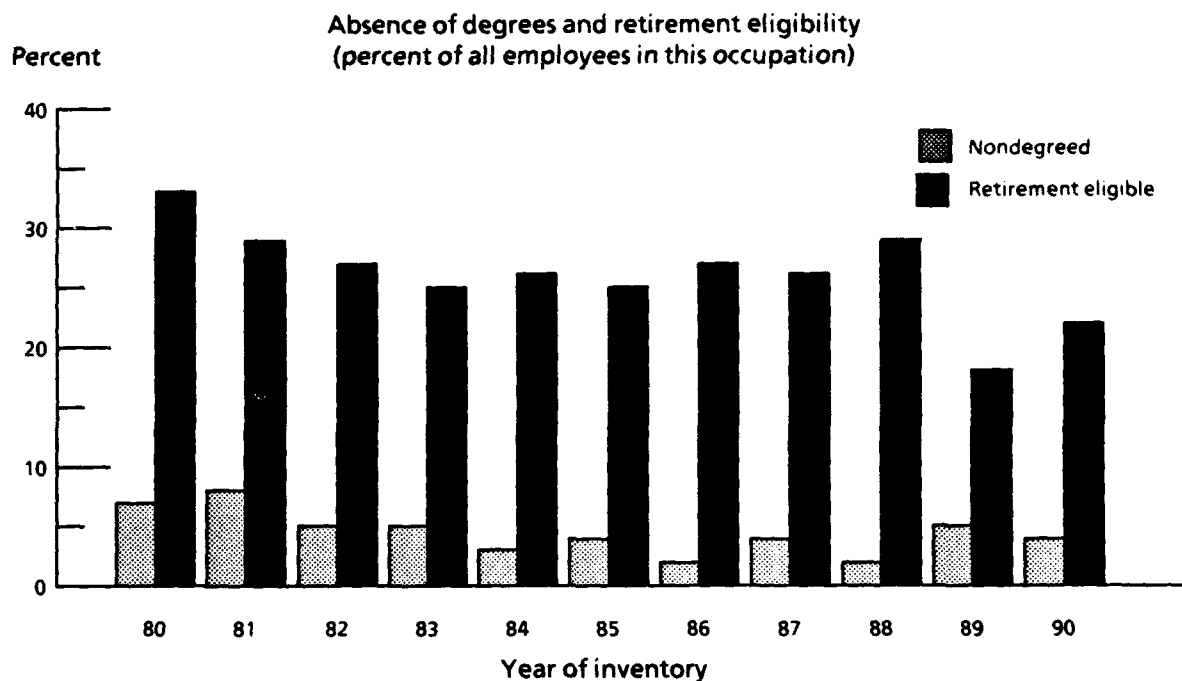
OCCUPATION: 00480 – GENERAL FISH AND WILDLIFE ADMIN.

1990 Employee Profile
DoD total employed: 23

Selected characteristics

Gender		Citizenship	
Male	22	United States	23
Female	1	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	0	Army	18
Asian	1	Navy	4
Black	1	Marine Corps	1
Hispanic	2	Air Force	0
White	19	Defense Agency	0
Other	0	Unknown	0

Academic degree backgrounds

Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Wildlife Biology	8	3	4	1	0
Second	Fish, Game, & Wildlife Mgmt.	5	2	3	0	0
Third	Biology, General	2	1	1	0	0
Fourth	Zoology, General	2	2	0	0	0
	Other fields	4	3	1	0	0
	Nondegreed	2	0	0	0	2
	Unknown	0	0	0	0	0

OCCUPATION: 00480 – GENERAL FISH AND WILDLIFE ADMIN.
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend: ▨ Nondegreed   ■ Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average years since degree

Average DoD employment

Year of inventory
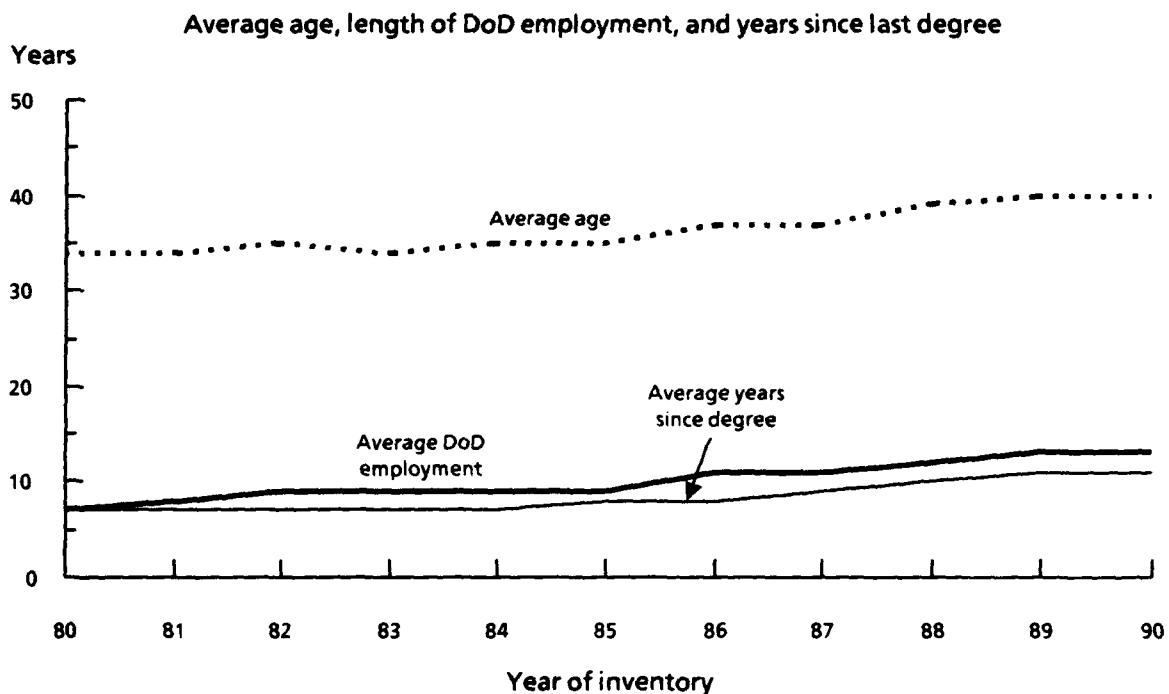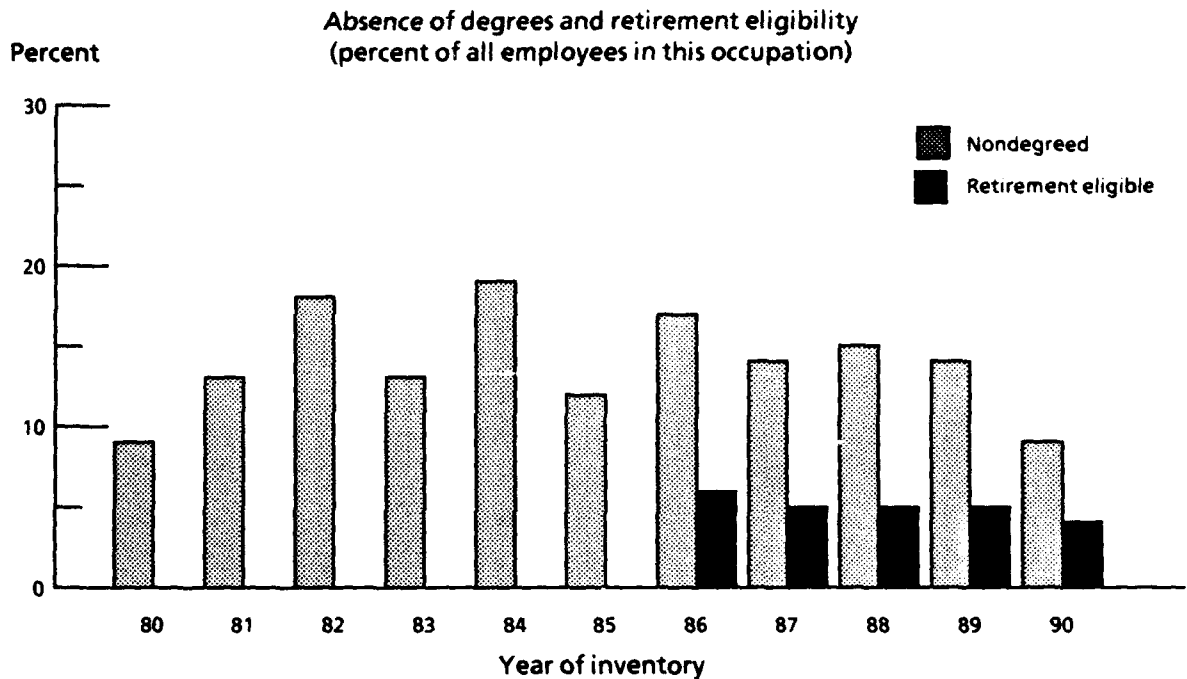
OCCUPATION: 00482 – FISHERY BIOLOGY

1990 Employee Profile
DoD total employed: 34

Selected characteristics			
Gender		**Citizenship**	
Male	32	United States	34
Female	2	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	0	Army	33
Asian	0	Navy	1
Black	0	Marine Corps	0
Hispanic	0	Air Force	0
White	34	Defense Agency	0
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			**Number of employees, by degree level**			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Marine Biology	7	4	2	1	0
Second	Other Biology	7	3	4	0	0
Third	Biology, General	5	1	3	1	0
Fourth	Zoology, General	4	2	2	0	0
	Other fields	10	3	6	1	0
	Nondegreed	1	0	0	0	1
	Unknown	0	0	0	0	0

OCCUPATION: 00482 – FISHERY BIOLOGY
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average years since degree

Average DoD employment

Year of inventory
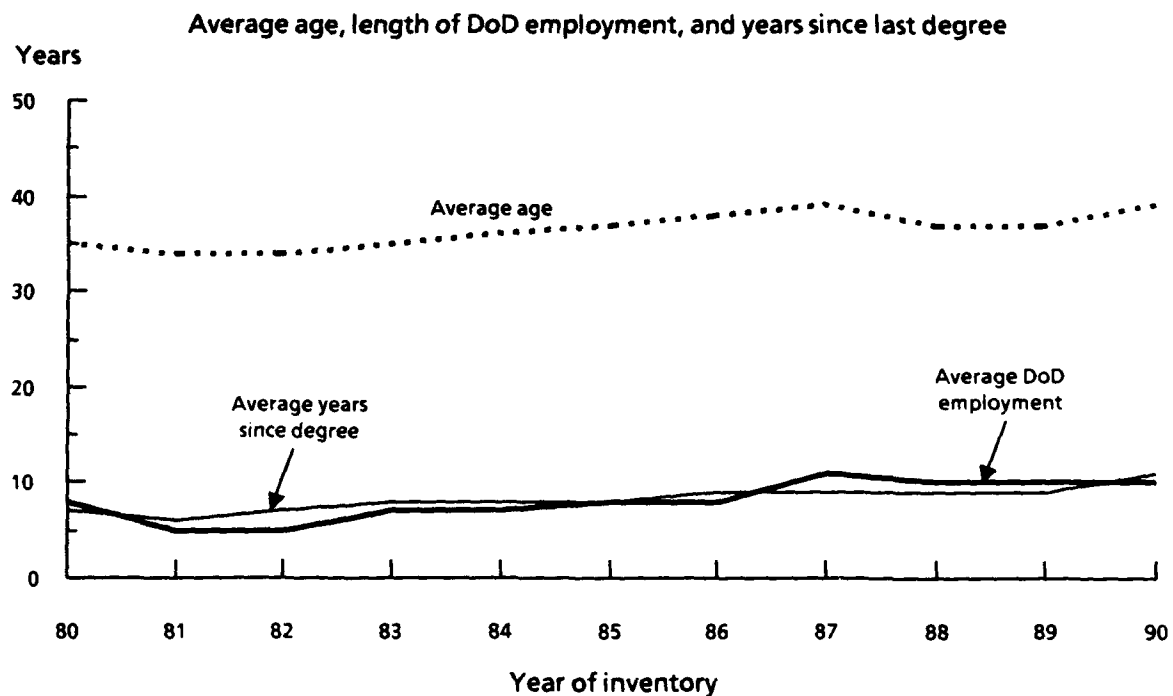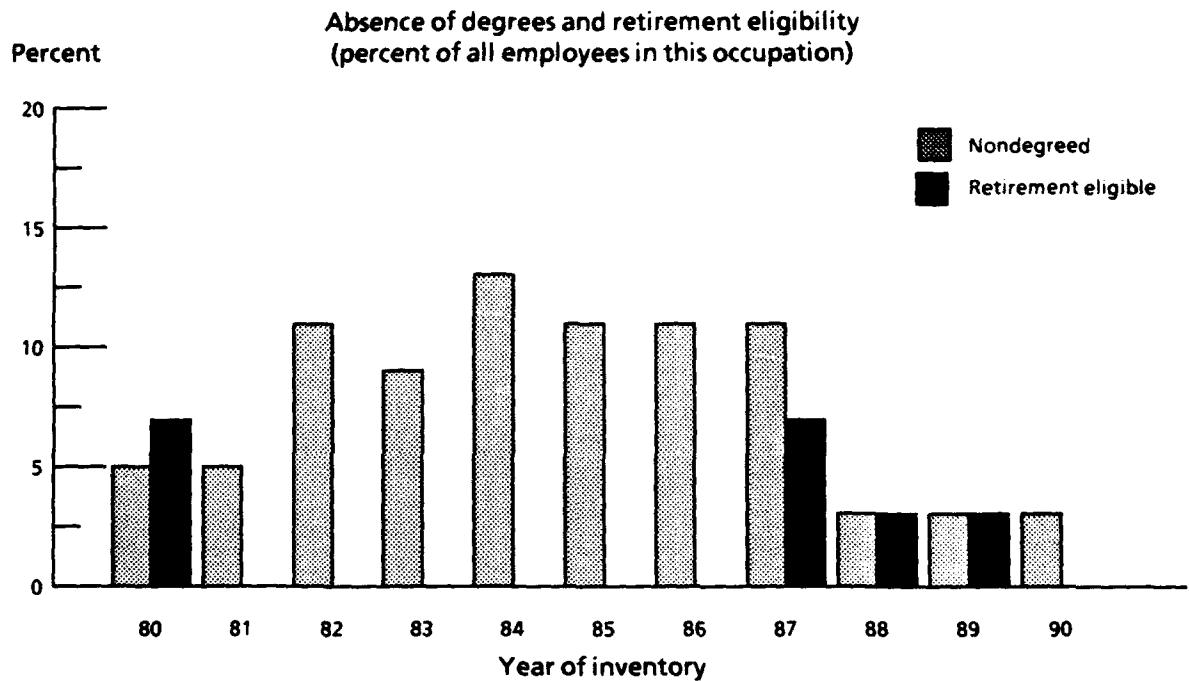
OCCUPATION: 00486 – WILDLIFE BIOLOGY

1990 Employee Profile
DoD total employed: 78

Selected characteristics

Gender		Citizenship	
Male	68	United States	78
Female	10	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	0	Army	61
Asian	0	Navy	6
Black	1	Marine Corps	5
Hispanic	2	Air Force	6
White	75	Defense Agency	0
Other	0	Unknown	0

Academic degree backgrounds

Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Wildlife Biology	31	12	18	1	0
Second	Fish, Game, & Wildlife Mgmt.	14	8	6	0	0
Third	Biology, General	10	7	2	1	0
Fourth	Forestry	5	5	0	0	0
Fifth	Zoology, General	4	3	0	1	0
	Other fields	12	4	7	1	0
	Nondegreed	2	0	0	0	2
	Unknown	0	0	0	0	0

OCCUPATION: 00486 – WILDLIFE BIOLOGY
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Nondegreed
Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD employment

Average years since degree

Year of inventory
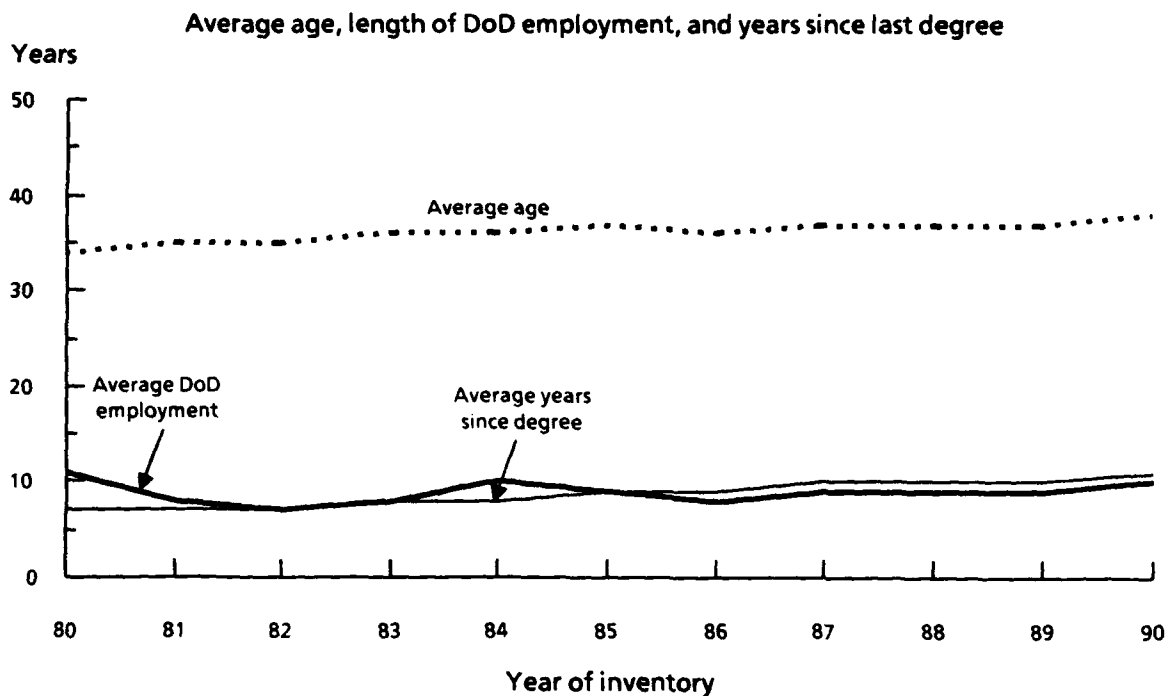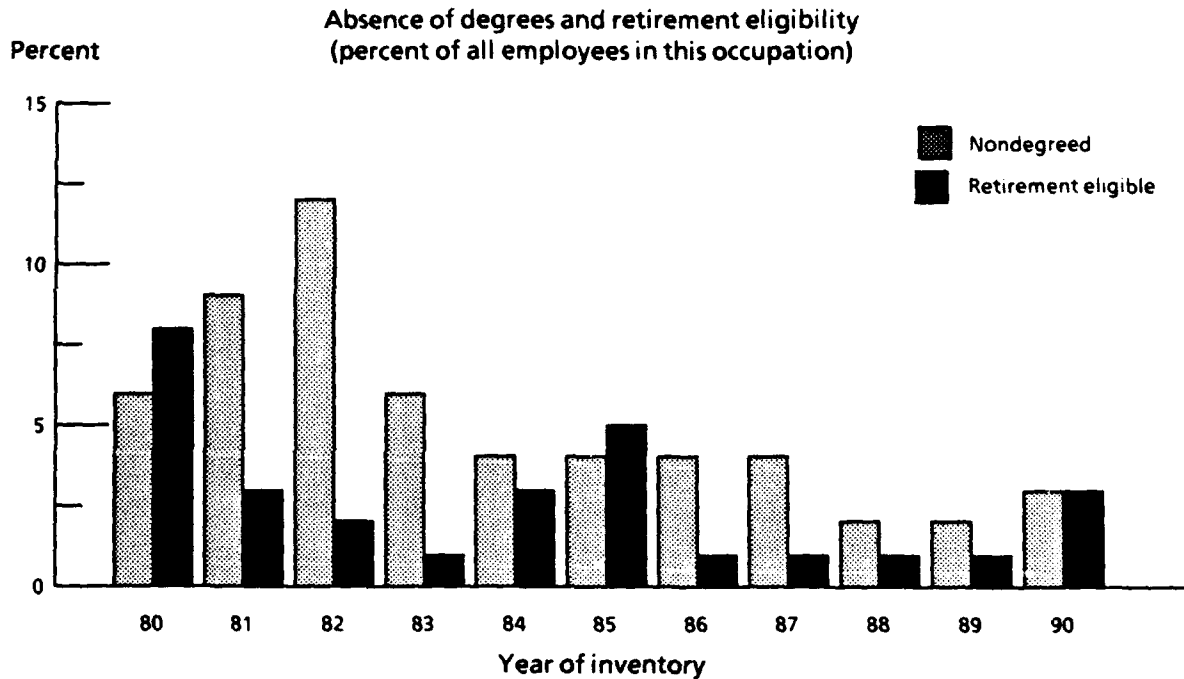
OCCUPATION: 00487 – ANIMAL SCIENCE

1990 Employee Profile
DoD total employed: 3

Selected characteristics			
Gender		Citizenship	
Male	3	United States	3
Female	0	Foreign nation	0
Race/ethnicity		Employer	
American Indian	0	Army	1
Asian	0	Navy	0
Black	1	Marine Corps	0
Hispanic	0	Air Force	0
White	2	Defense Agency	2
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Animal Science	2	1	1	0	0
Second	Biology, General	1	0	1	0	0
	Other fields	0	0	0	0	0
	Nondegreed	0	0	0	0	0
	Unknown	0	0	0	0	0

OCCUPATION: 00487 – ANIMAL SCIENCE
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Legend:
- Nondegreed
- Retirement eligible

X-axis: Year of inventory (80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90)
Y-axis: Percent (0, 25, 50, 75, 100)

Average age, length of DoD employment, and years since last degree

Y-axis: Years (0, 15, 30, 45, 60, 75)
X-axis: Year of inventory (80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90)

Curves labeled: Average age; Average years since degree; Average DoD employment

OCCUPATION: 00493 – HOME ECONOMICS

1990 Employee Profile
DoD total employed: 15

Selected characteristics			
Gender		**Citizenship**	
Male	1	United States	15
Female	14	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	0	Army	7
Asian	1	Navy	6
Black	3	Marine Corps	0
Hispanic	0	Air Force	2
White	11	Defense Agency	0
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			**Number of employees, by degree level**			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Home Economics, General	3	2	1	0	0
Second	Food, Nutrition	3	3	0	0	0
Third	Nutrition	2	0	2	0	0
	Other fields	5	1	4	0	0
	Nondegreed	2	0	0	0	2
	Unknown	0	0	0	0	0

OCCUPATION: 00493 – HOME ECONOMICS
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Nondegreed
Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average years
since degree

Average DoD
employment

Year of inventory
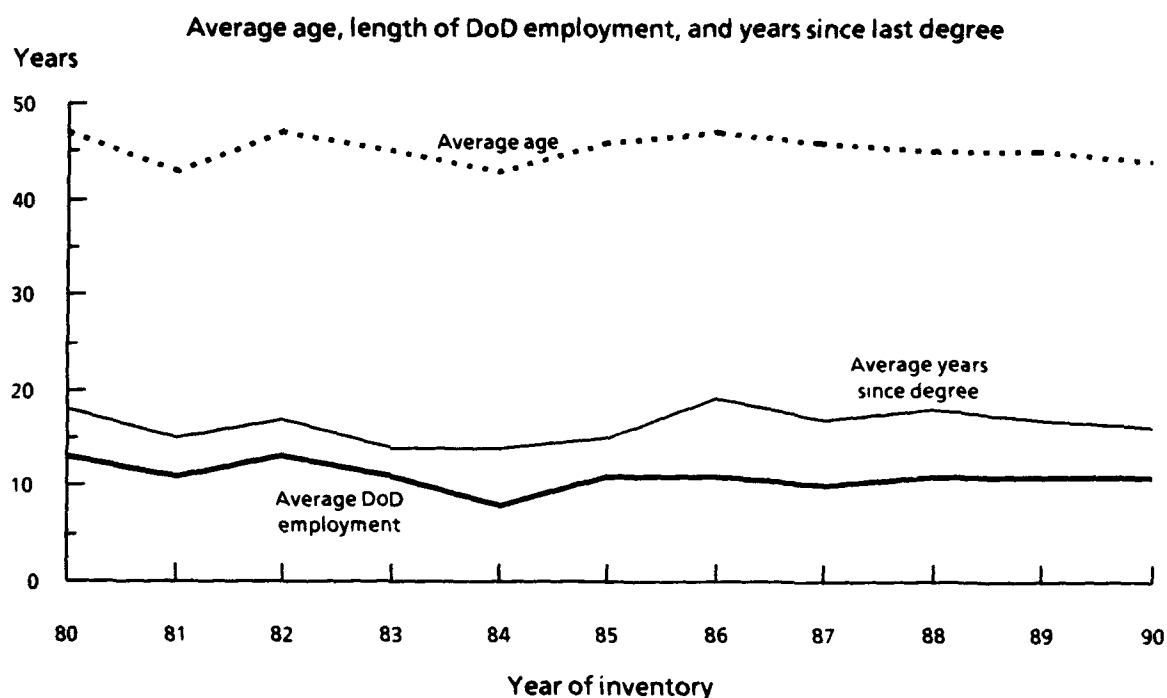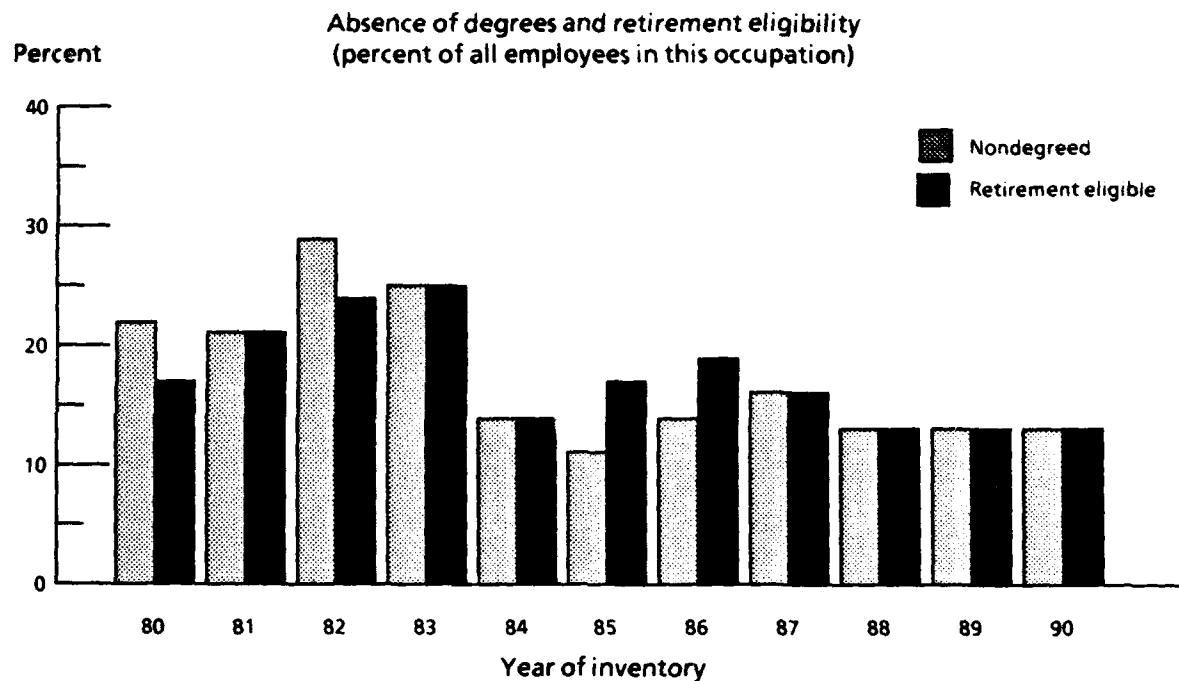
OCCUPATION: 00601 – GENERAL HEALTH SCIENCE

1990 Employee Profile
DoD total employed: 156

Selected characteristics

Gender		Citizenship	
Male	72	United States	155
Female	84	Foreign nation	1
Race/ethnicity		Employer	
American Indian	2	Army	62
Asian	9	Navy	40
Black	15	Marine Corps	0
Hispanic	9	Air Force	38
White	121	Defense Agency	16
Other	0	Unknown	0

Academic degree backgrounds

Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Biology, General	28	23	4	1	0
Second	Physical Education	10	1	9	0	0
Third	Public Health	9	1	3	5	0
Fourth	Health Professional, General	8	4	2	2	0
Fifth	Medical Laboratory Tech.	7	6	1	0	0
Sixth	Other Health	6	2	2	2	0
	Other fields	71	33	21	17	0
	Nondegreed	17	0	0	0	17
	Unknown	0	0	0	0	0

OCCUPATION: 00601 – GENERAL HEALTH SCIENCE
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Nondegreed
Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD
employment

Average years
since degree

Year of inventory
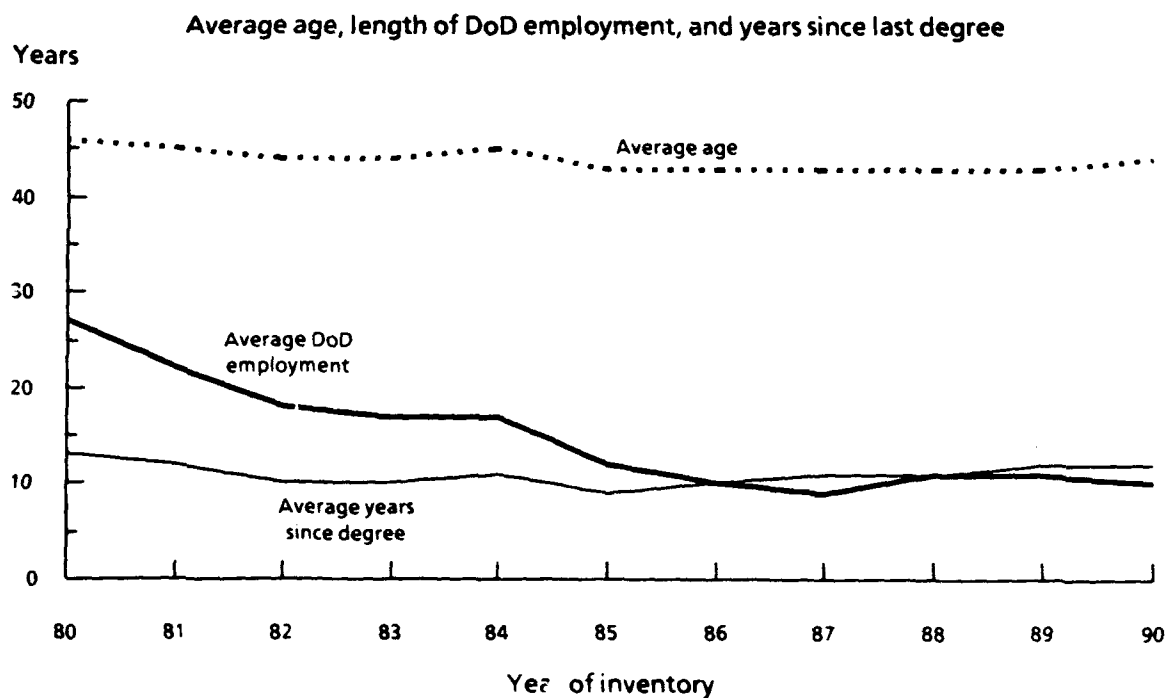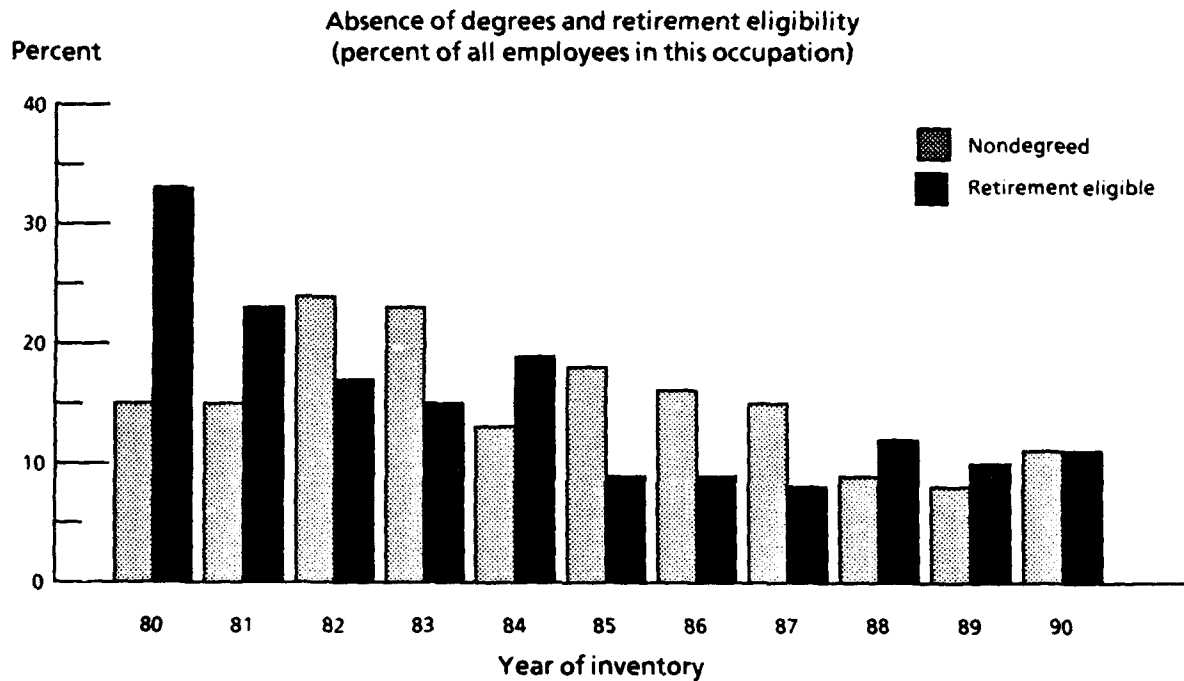
OCCUPATION: 00602 – MEDICAL OFFICER

1990 Employee Profile
DoD total employed: 1,346

Selected characteristics

Gender		Citizenship	
Male	1,067	United States	1,317
Female	279	Foreign nation	29
Race/ethnicity		Employer	
American Indian	0	Army	986
Asian	150	Navy	121
Black	53	Marine Corps	0
Hispanic	49	Air Force	159
White	1,094	Defense Agency	80
Other	0	Unknown	0

Academic degree backgrounds

Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Medicine, M.D.	798	517	135	146	0
Second	Medical Specialties	213	125	40	48	0
Third	Osteopathic Medicine, D.O.	36	24	2	10	0
Fourth	Biology, General	21	13	4	4	0
Fifth	Health Professions, General	19	9	6	4	0
	Other fields	174	65	51	58	0
	Nondegreed	84	0	0	0	84
	Unknown	1	1	0	0	0

OCCUPATION: 00602 – MEDICAL OFFICER
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Year of inventory

- Nondegreed
- Retirement eligible

Average age, length of DoD employment, and years since last degree

Years

Average age

Average years
since degree

Average DoD
employment

Year of inventory
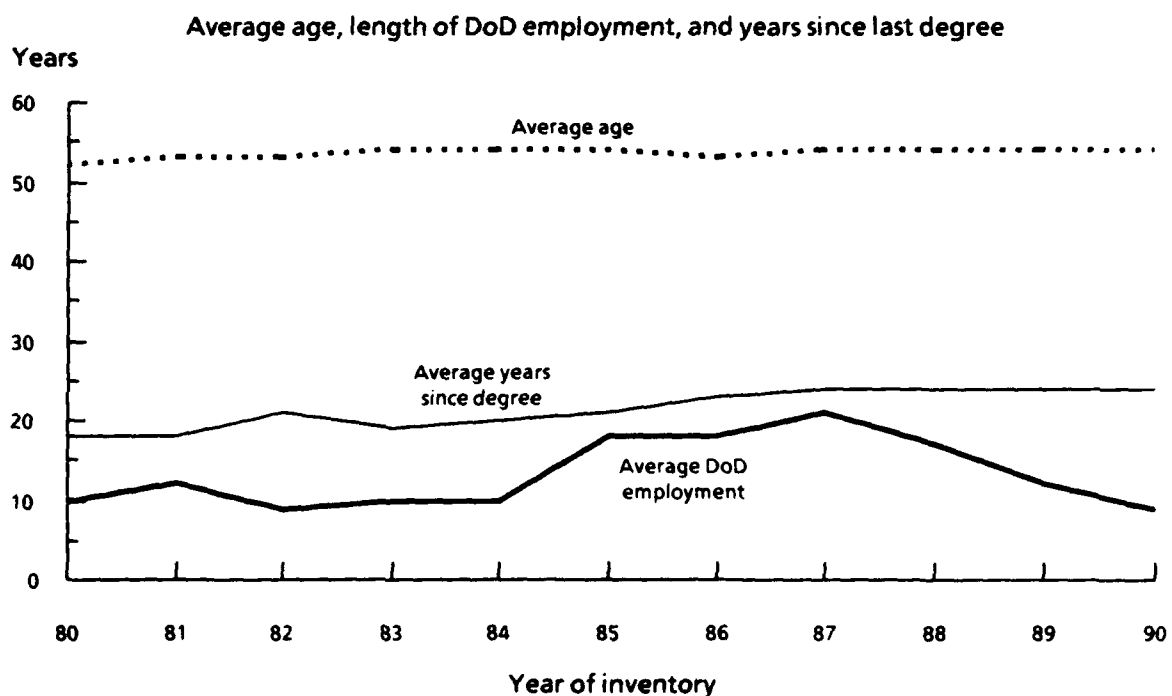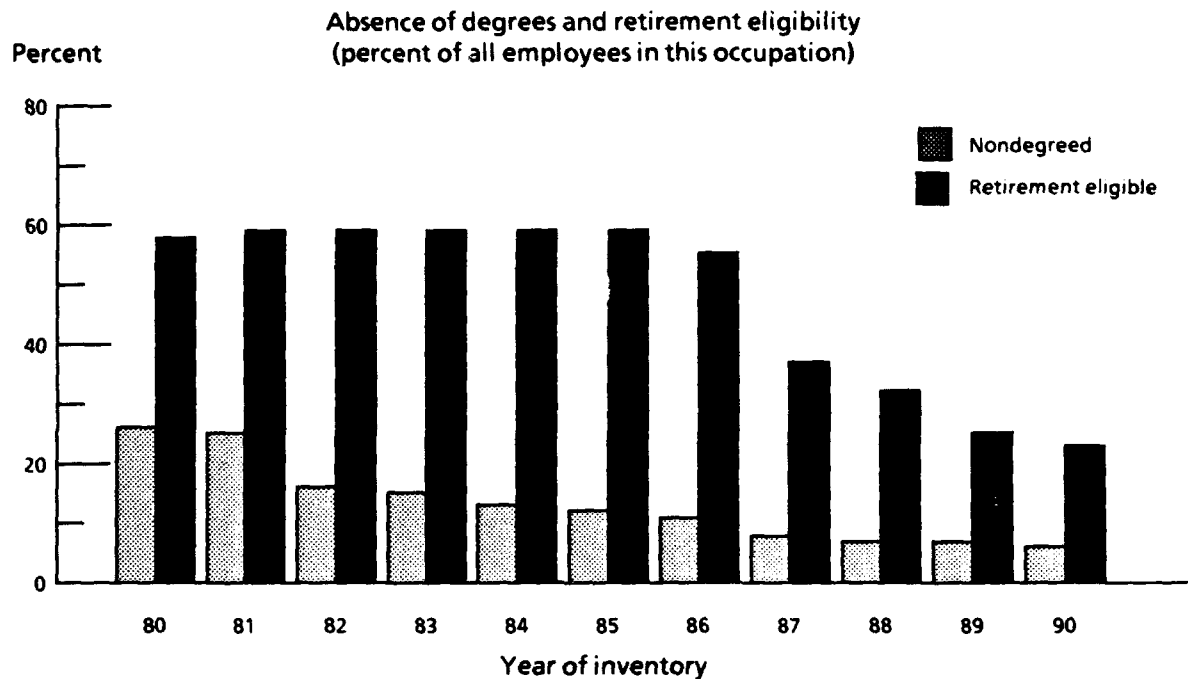
OCCUPATION: 00660 – PHARMACIST

1990 Employee Profile
DoD total employed: 540

Selected characteristics

Gender		Citizenship	
Male	314	United States	540
Female	226	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	5	Army	388
Asian	65	Navy	92
Black	58	Marine Corps	0
Hispanic	38	Air Force	51
White	374	Defense Agency	9
Other	0	Unknown	0

Academic degree backgrounds

	Academic major		Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Pharmacy	420	393	19	8	0
Second	Pharmacology	29	24	5	0	0
Third	Gen. Liberal Arts and Science	21	21	0	0	0
Fourth	Pharmaceutical Chemistry	20	17	2	1	0
	Other fields	19	8	9	2	0
	Nondegreed	29	0	0	0	29
	Unknown	2	2	0	0	0

OCCUPATION: 00660 – PHARMACIST

(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Legend:
- Nondegreed
- Retirement eligible

Average age, length of DoD employment, and years since last degree
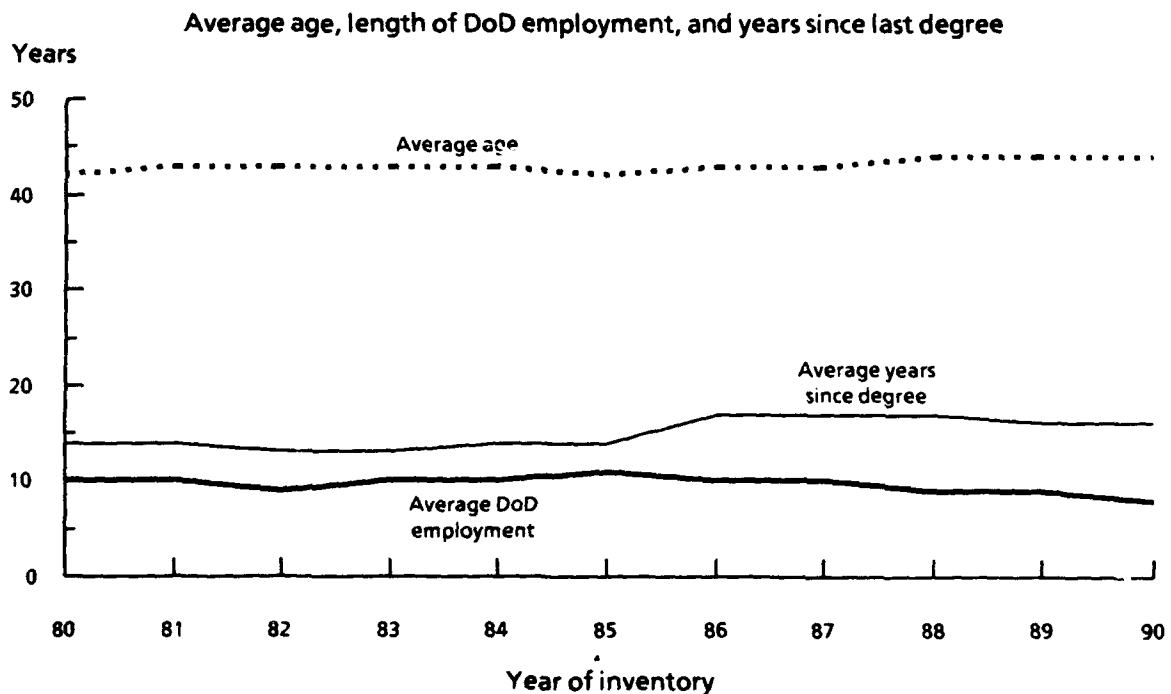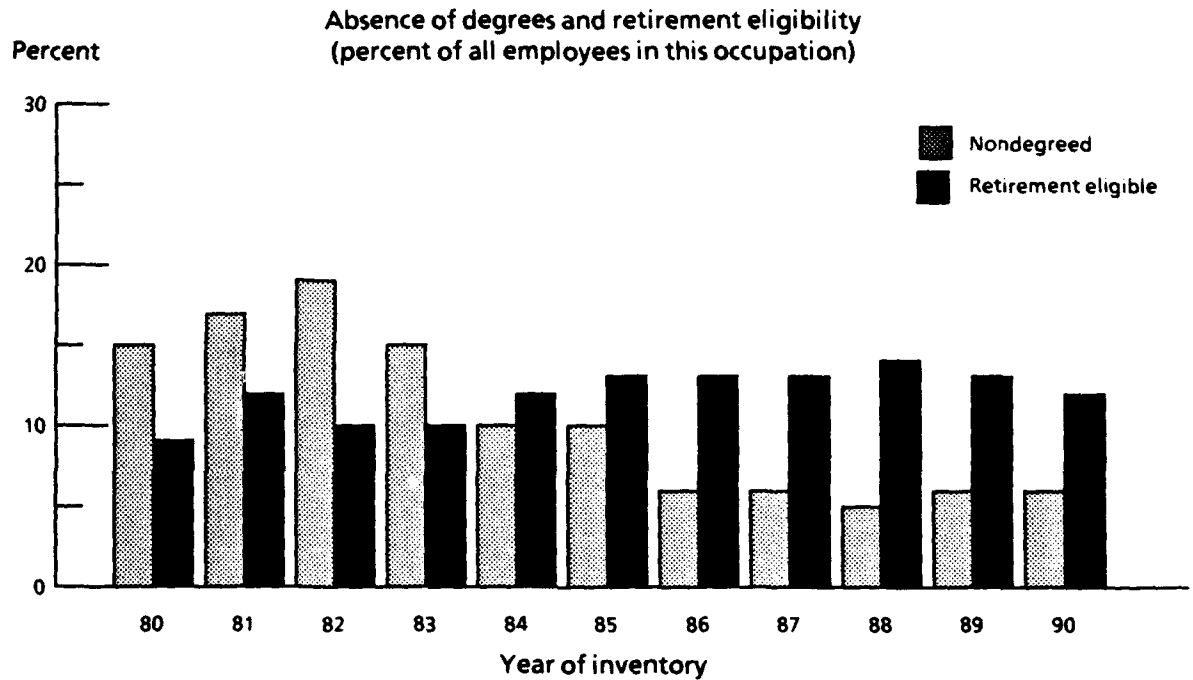
OCCUPATION: 00662 – OPTOMETRIST

1990 Employee Profile
DoD total employed: 41

Selected characteristics			
Gender		**Citizenship**	
Male	35	United States	41
Female	6	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	0	Army	24
Asian	4	Navy	12
Black	4	Marine Corps	0
Hispanic	0	Air Force	5
White	33	Defense Agency	0
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			**Number of employees, by degree level**			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Optometry	35	25	5	5	0
	Other fields	2	1	1	0	0
	Nondegreed	4	0	0	0	4
	Unknown	0	0	0	0	0

OCCUPATION: 00662 – OPTOMETRIST
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average years
since degree

Average DoD
employment

Year of inventory
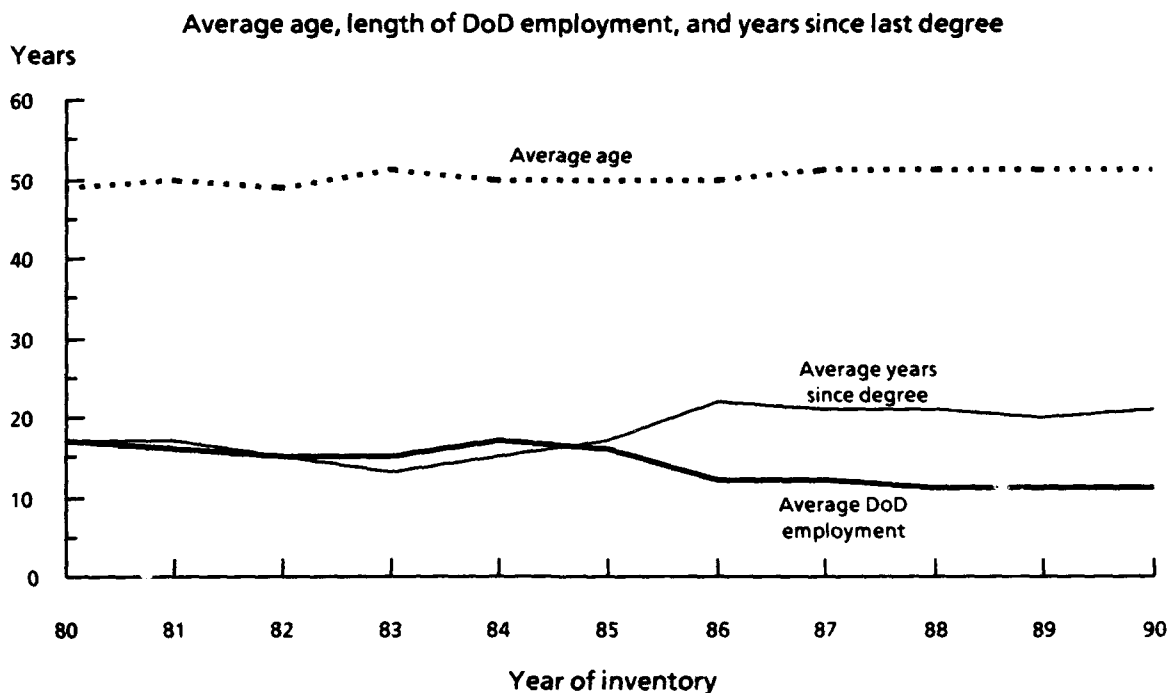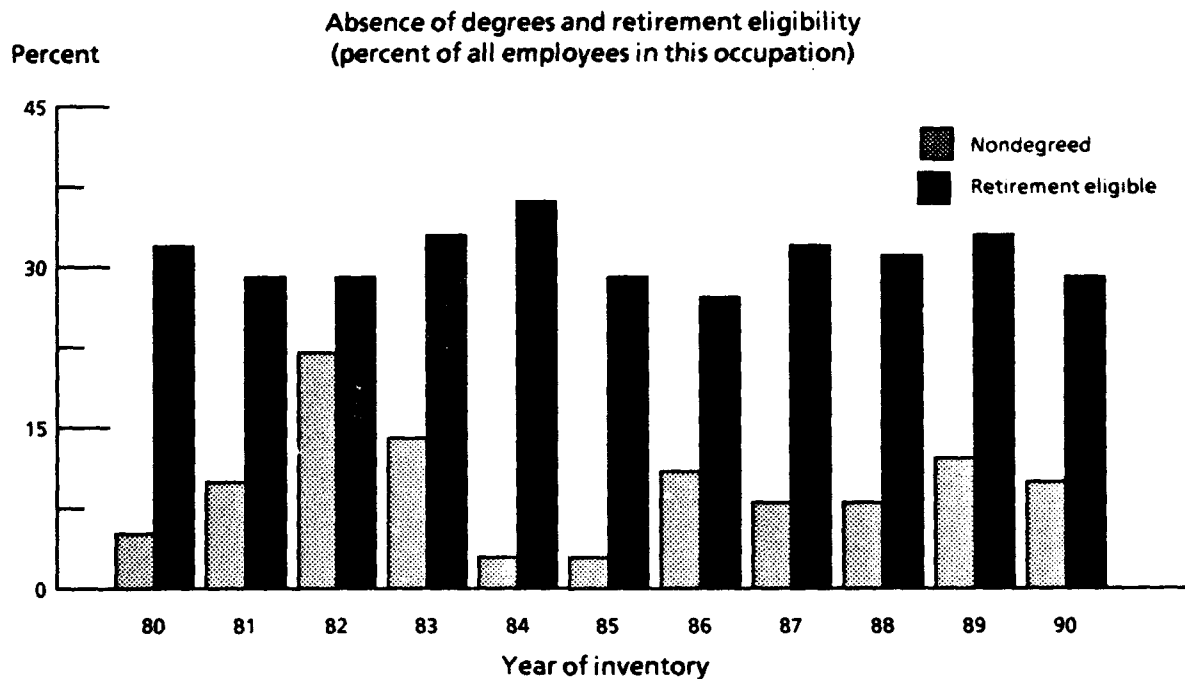
OCCUPATION: 00665 – SPEECH PATHOLOGY AND AUDIOLOGY

1990 Employee Profile
DoD total employed: 166

Selected characteristics			
Gender		**Citizenship**	
Male	46	United States	166
Female	120	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	0	Army	101
Asian	5	Navy	49
Black	5	Marine Corps	0
Hispanic	3	Air Force	15
White	153	Defense Agency	1
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Speech Pathology and Audio.	120	5	103	12	0
Second	Speech Connection	15	0	15	0	0
Third	Gen. Liberal Arts and Science	4	0	4	0	0
	Other fields	18	1	12	5	0
	Nondegreed	8	0	0	0	8
	Unknown	1	0	1	0	0

OCCUPATION: 00665 – SPEECH PATHOLOGY AND AUDIOLOGY
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average years since degree

Average DoD employment

Year of inventory

C-80
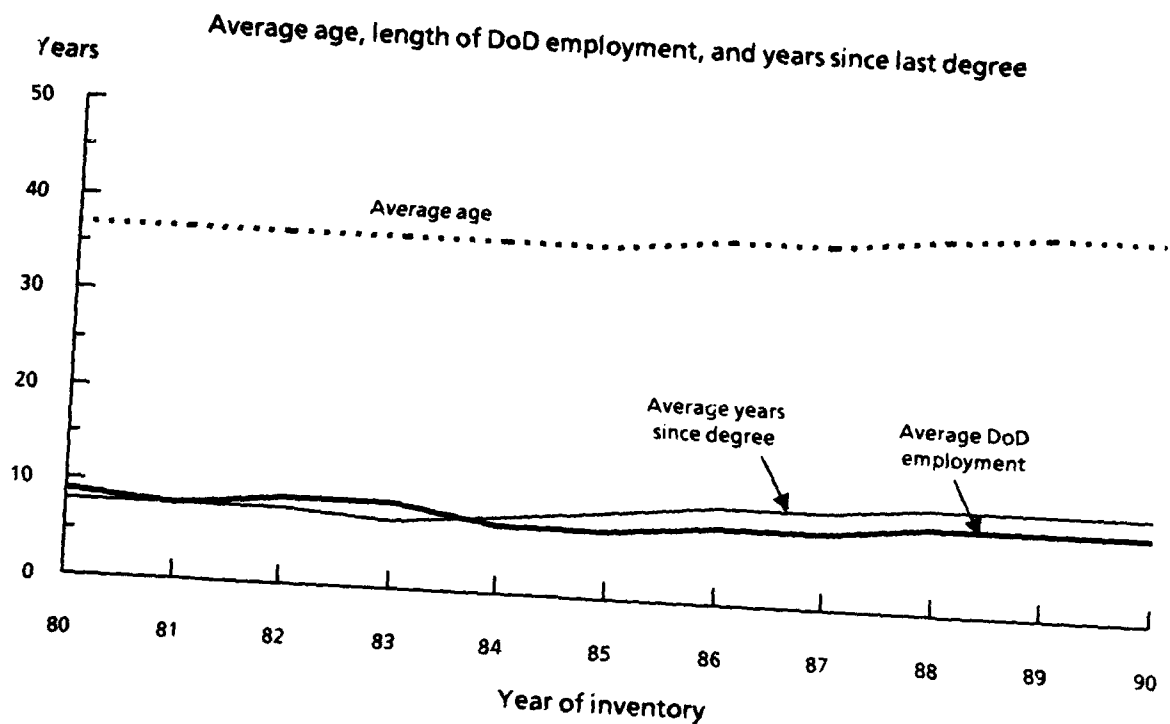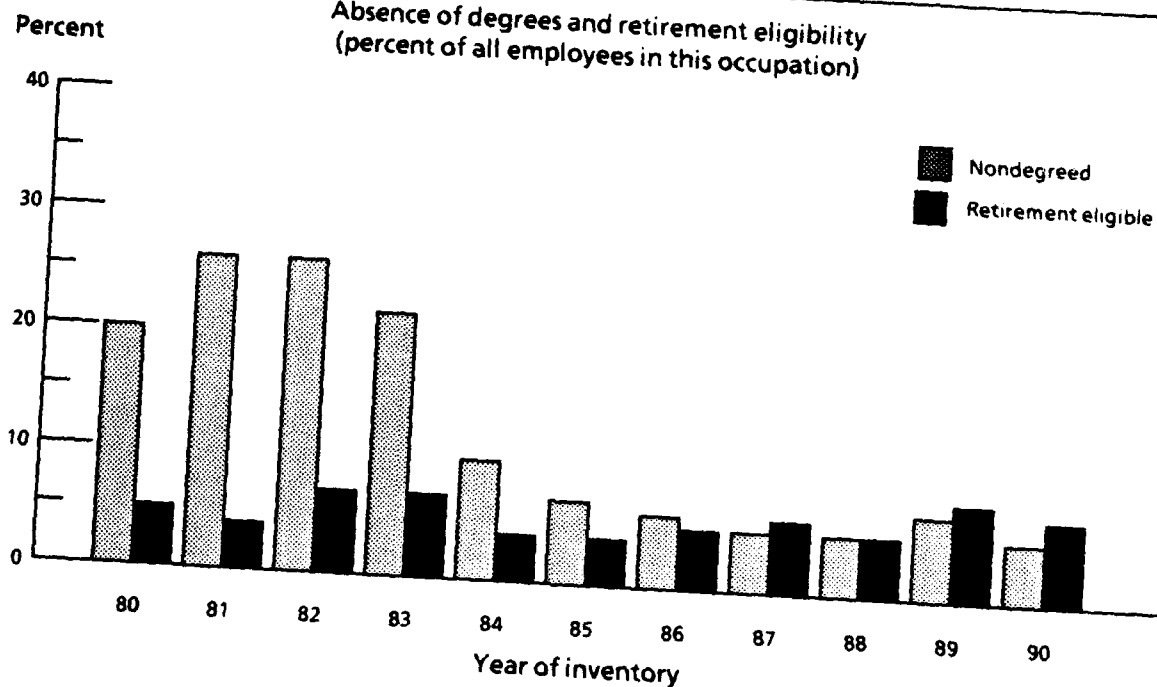
OCCUPATION: 00668 – PODIATRIST

1990 Employee Profile
DoD total employed: 13

Selected characteristics			
Gender		Citizenship	
Male	12	United States	13
Female	1	Foreign nation	0
Race/ethnicity		Employer	
American Indian	0	Army	11
Asian	0	Navy	0
Black	1	Marine Corps	0
Hispanic	0	Air Force	2
White	12	Defense Agency	0
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Podiatry	9	0	7	2	0
	Other fields	3	2	1	0	0
	Nondegreed	1	0	0	0	1
	Unknown	0	0	0	0	0

OCCUPATION: 00668 – PODIATRIST
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Nondegreed

Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD
employment

Average years
since degree

Year of inventory

C-82
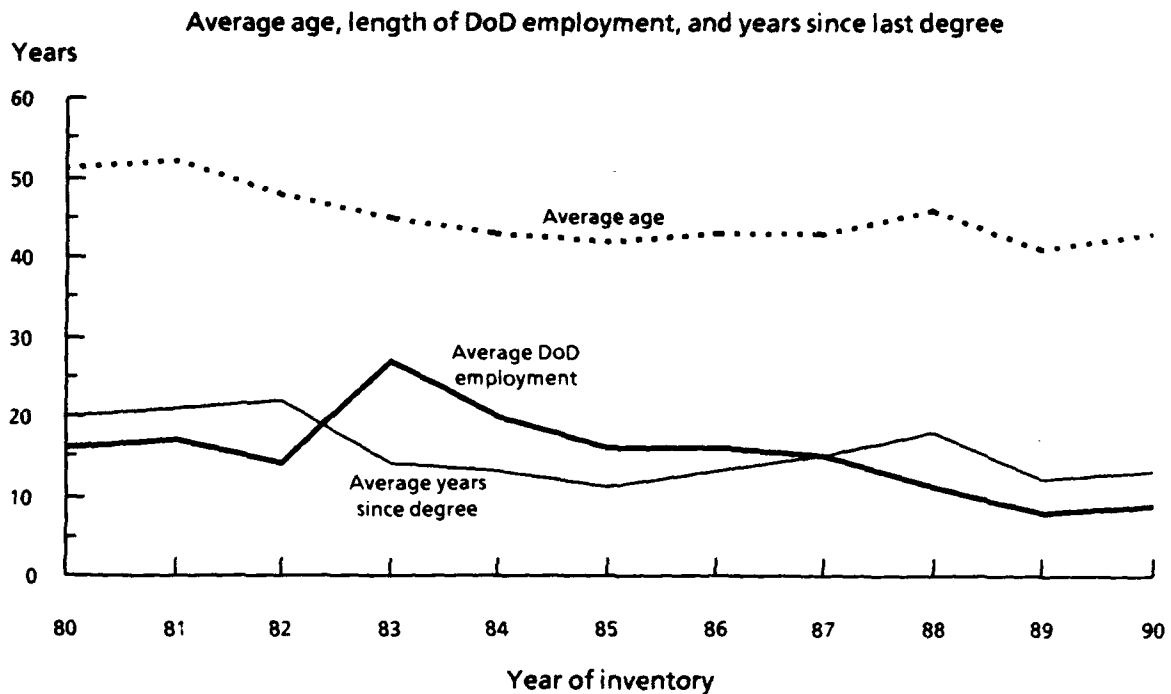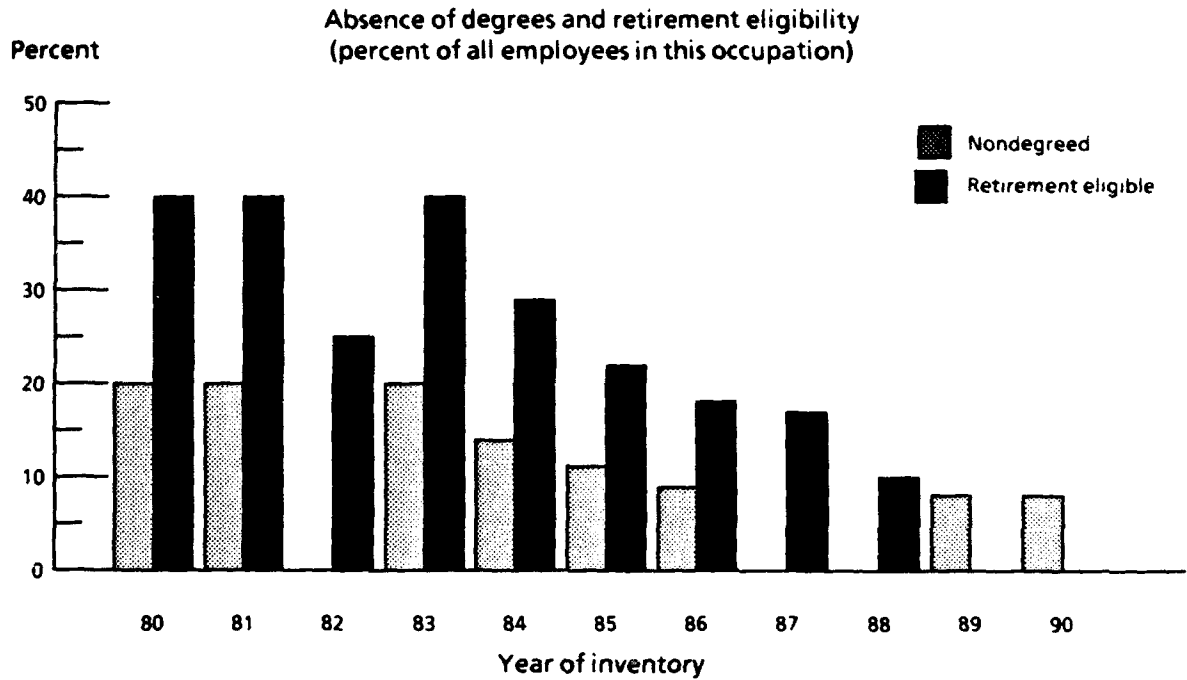
OCCUPATION: 00680 – DENTAL OFFICER

1990 Employee Profile
DoD total employed: 67

Selected characteristics			
Gender		**Citizenship**	
Male	57	United States	67
Female	10	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	0	Army	47
Asian	4	Navy	0
Black	2	Marine Corps	0
Hispanic	5	Air Force	20
White	56	Defense Agency	0
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Dentistry	45	30	3	12	0
Second	Dental Specialties	10	5	5	0	0
Third	Medicine, M.D.	3	1	2	0	0
	Other fields	5	5	0	0	0
	Nondegreed	4	0	0	0	4
	Unknown	0	0	0	0	0

OCCUPATION: 00680 – DENTAL OFFICER
(continued)

1980 through 1990 trends

Percent

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Years

Average age, length of DoD employment, and years since last degree

Average age

Average years since degree

Average DoD employment

Year of inventory

C-84
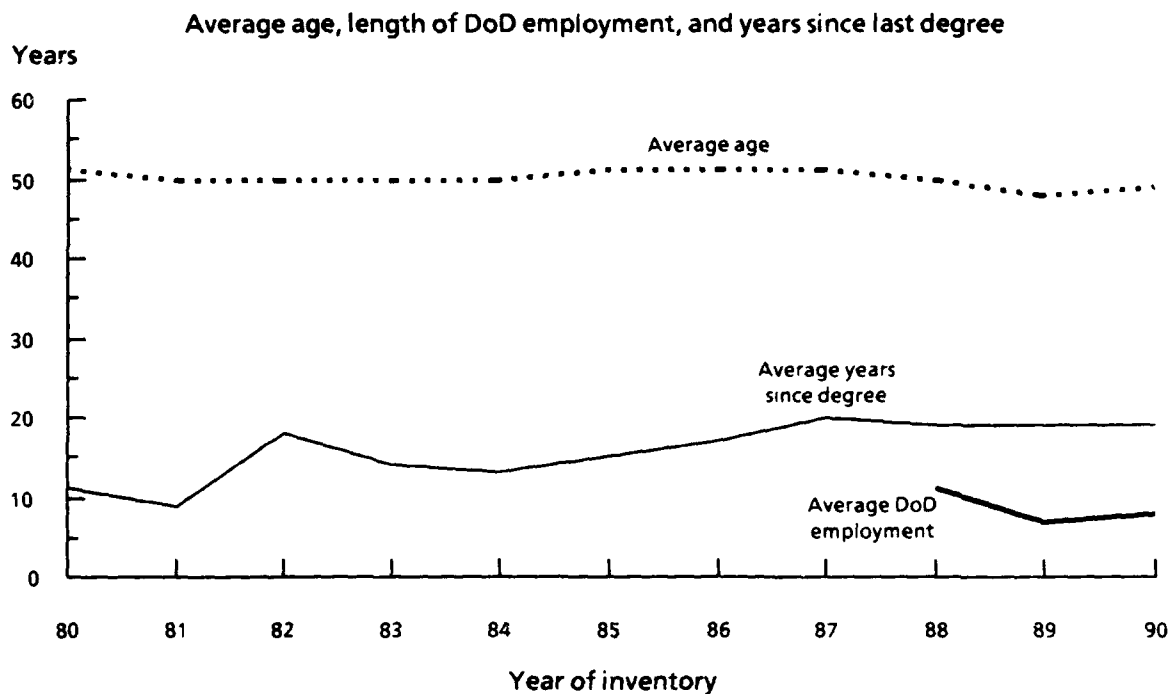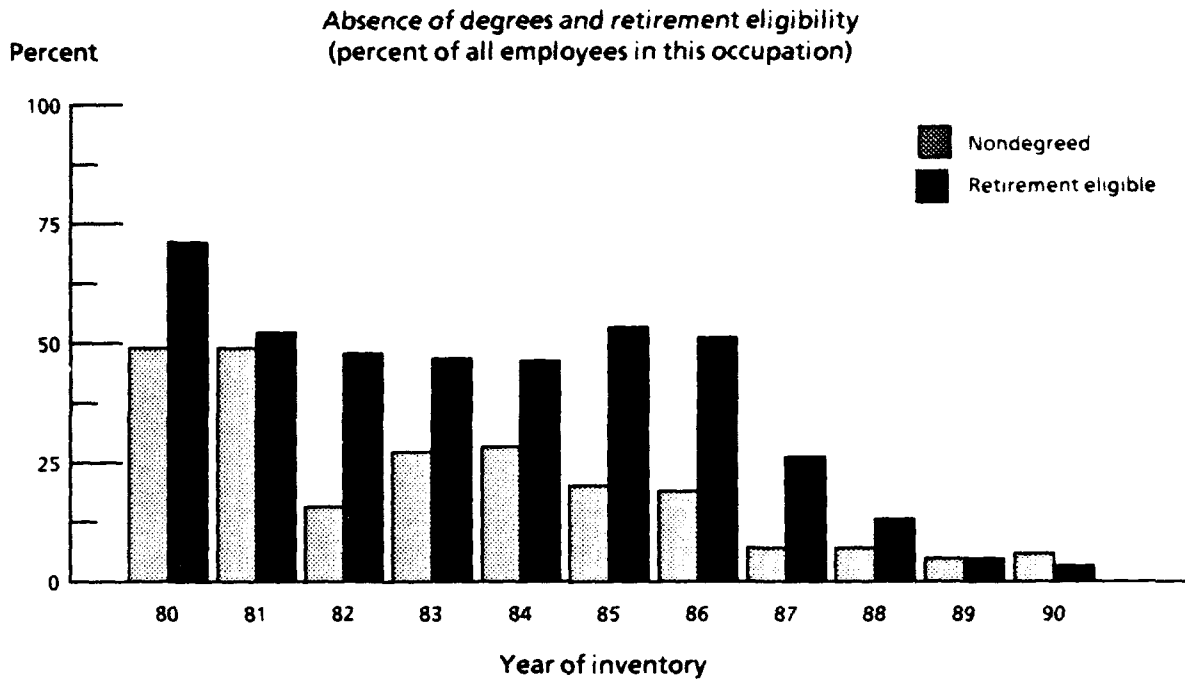
OCCUPATION: 00690 – INDUSTRIAL HYGIENE

1990 Employee Profile
DoD total employed: 551

Selected characteristics			
Gender		Citizenship	
Male	380	United States	551
Female	171	Foreign nation	0
Race/ethnicity		Employer	
American Indian	1	Army	182
Asian	34	Navy	305
Black	45	Marine Corps	2
Hispanic	17	Air Force	48
White	454	Defense Agency	14
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Biology, General	102	74	27	1	0
Second	Chemistry, General	59	48	10	1	0
Third	Public Health	36	5	31	0	0
Fourth	Other Health	36	13	22	1	0
	Other fields	259	164	83	12	0
	Nondegreed	59	0	0	0	59
	Unknown	0	0	0	0	0

OCCUPATION: 00690 – INDUSTRIAL HYGIENE
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Nondegreed
Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD
employment

Average years
since degree

Year of inventory
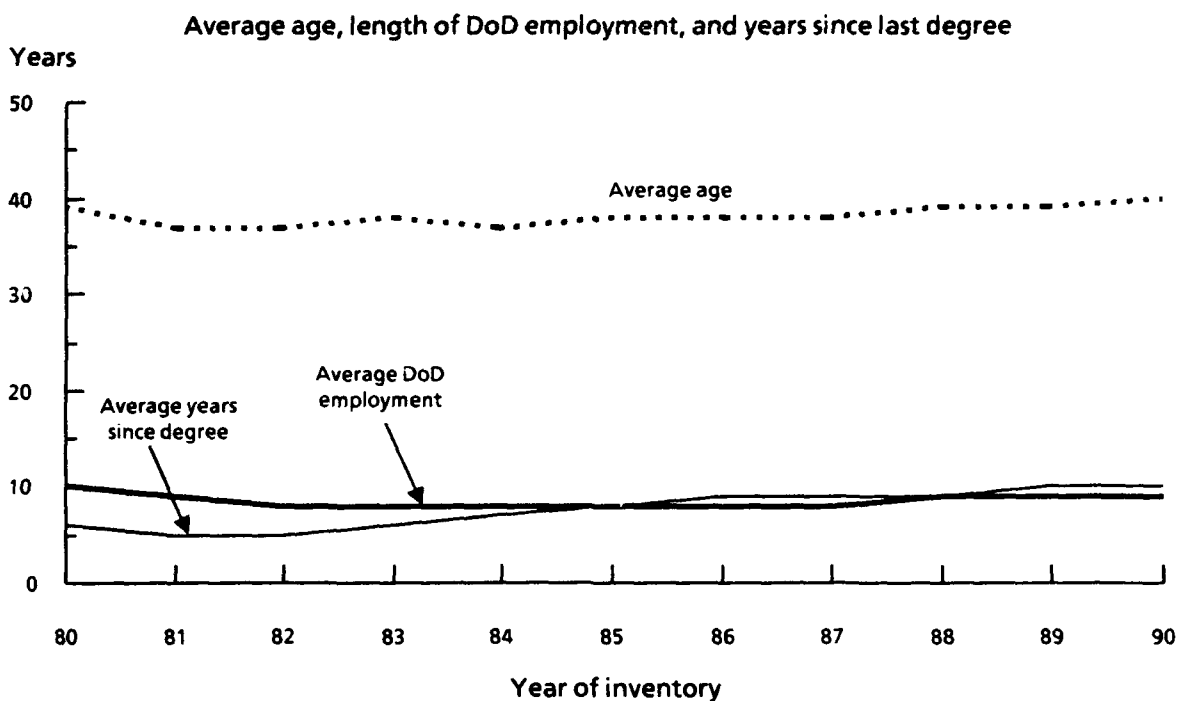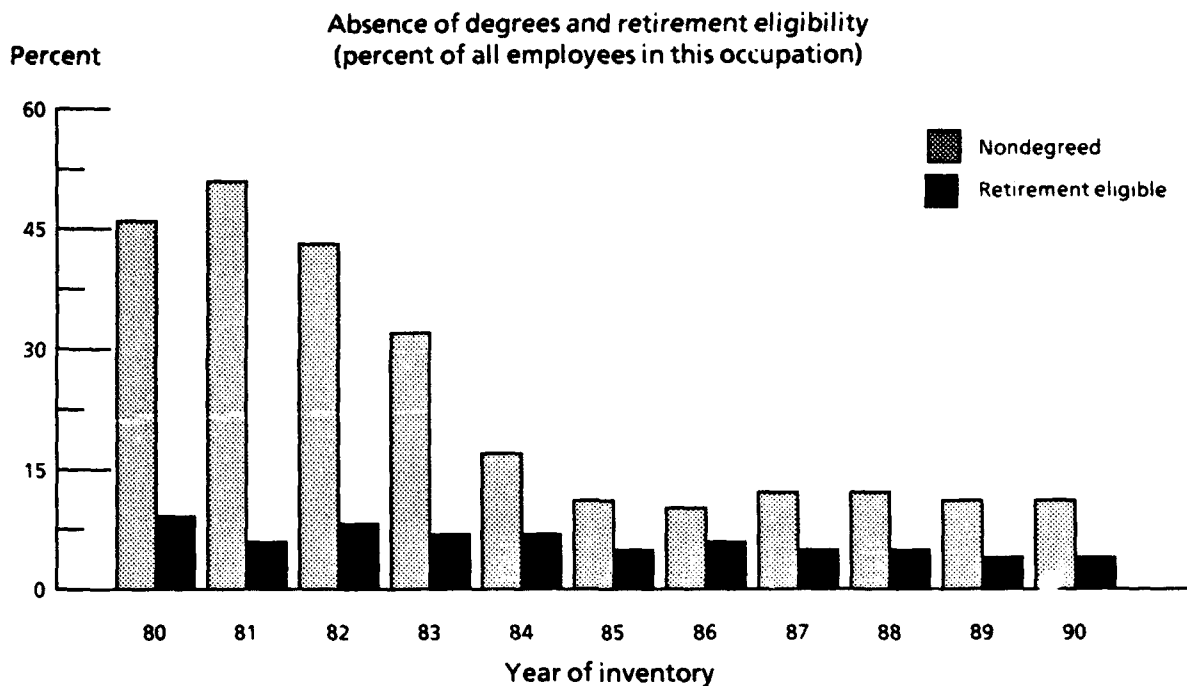
OCCUPATION: 00701 – VETERINARY MEDICAL SCIENCE

1990 Employee Profile
DoD total employed: 21

Selected characteristics

Gender		Citizenship	
Male	19	United States	21
Female	2	Foreign nation	0
Race/ethnicity		Employer	
American Indian	0	Army	13
Asian	0	Navy	3
Black	1	Marine Corps	0
Hispanic	0	Air Force	5
White	20	Defense Agency	0
Other	0	Unknown	0

Academic degree backgrounds

Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Veterinary Medicine, DVM	10	5	1	4	0
Second	Veterinary Med. Specialties	6	1	2	3	0
Third	Physiology	2	0	0	2	0
	Other fields	1	0	0	1	0
	Nondegreed	2	0	0	0	2
	Unknown	0	0	0	0	0

OCCUPATION: 00701 – VETERINARY MEDICAL SCIENCE
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Nondegreed
Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average years
since degree

Average DoD
employment

Year of inventory
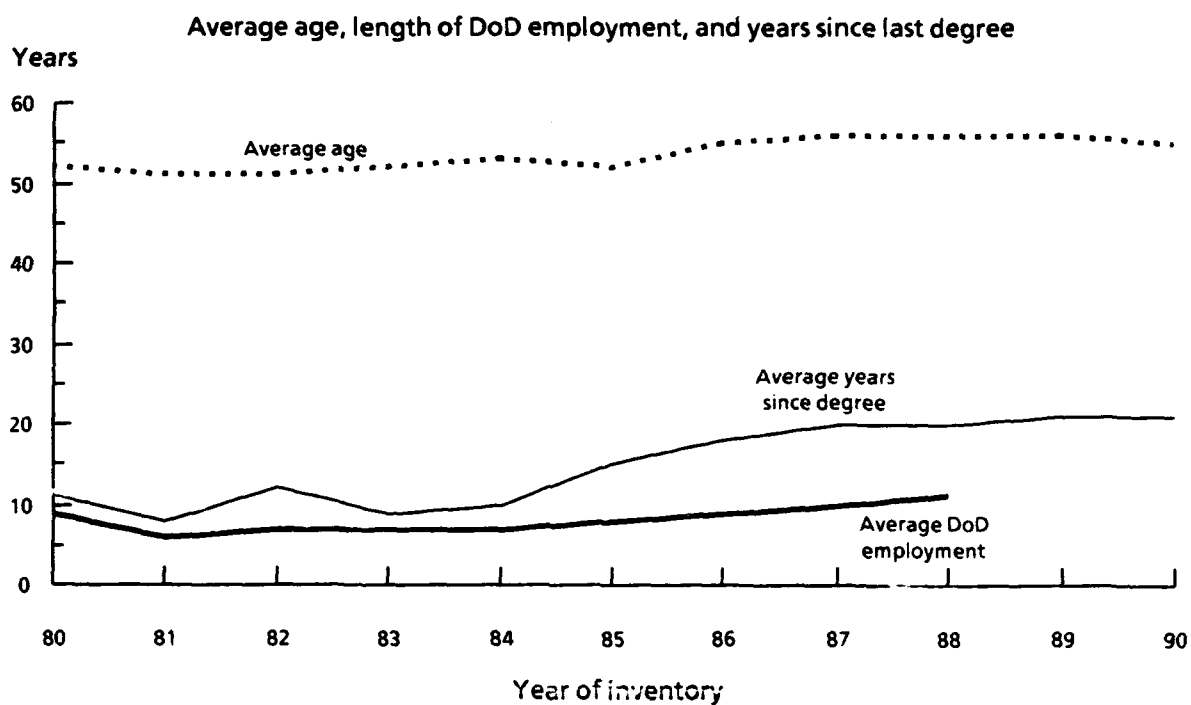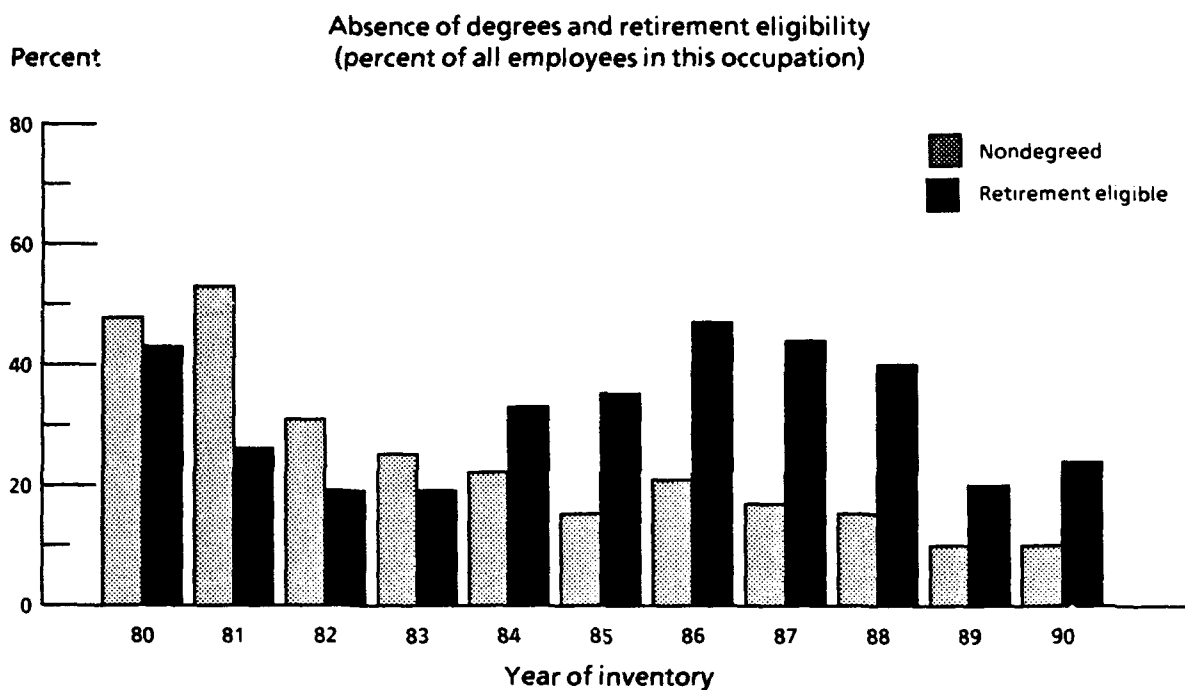
OCCUPATION: 00801 – GENERAL ENGINEERING

1990 Employee Profile
DoD total employed: 12,431

Selected characteristics			
Gender		**Citizenship**	
Male	11,736	United States	12,431
Female	695	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	53	Army	5,297
Asian	757	Navy	4,151
Black	400	Marine Corps	83
Hispanic	378	Air Force	2,292
White	10,840	Defense Agency	608
Other	3	Unknown	0

Academic degree backgrounds						
Academic major			**Number of employees, by degree level**			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Mechanical Engineering	2,721	2,254	420	47	0
Second	Electrical, Electronics and Communications Eng.	1,820	1,447	346	27	0
Third	Industrial and Mgmt. Eng.	979	639	339	1	0
Fourth	Engineering, General	722	534	173	15	0
Fifth	Aerospace, Aeronautical and Astronautical Engineering	599	427	138	34	0
	Other fields	5,286	3,340	1,786	160	0
	Nondegreed	295	0	0	0	295
	Unknown	9	7	2	0	0

OCCUPATION: 00801 – GENERAL ENGINEERING
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

- Average age
- Average DoD employment
- Average years since degree

Year of inventory
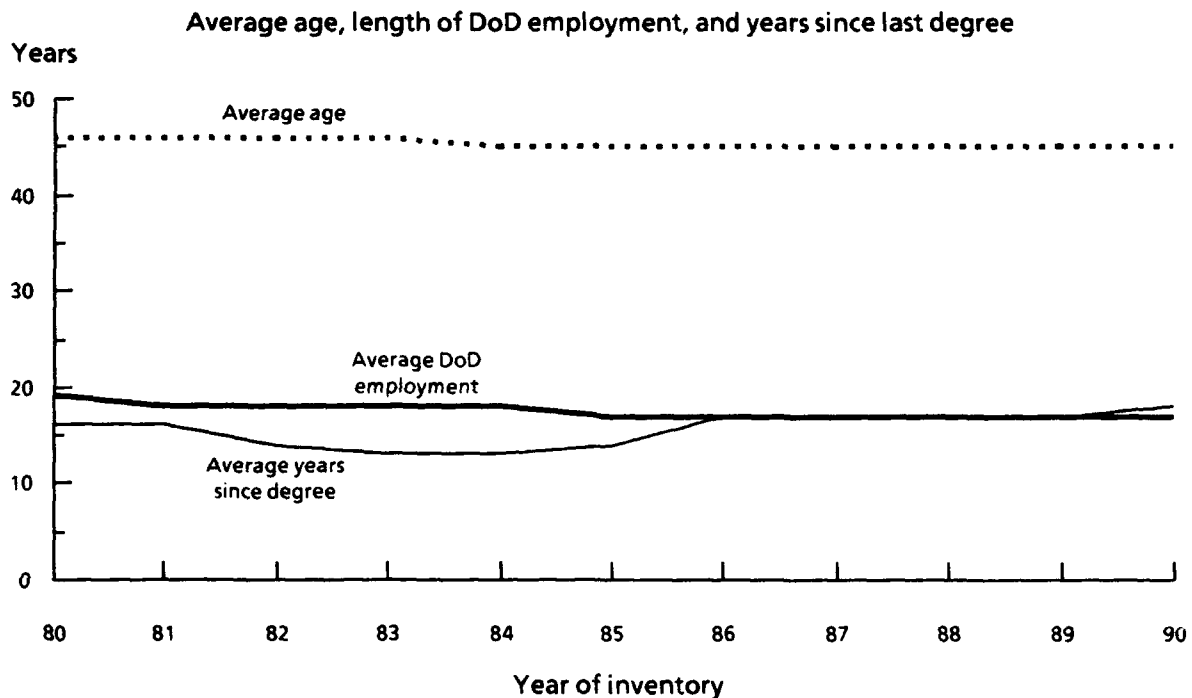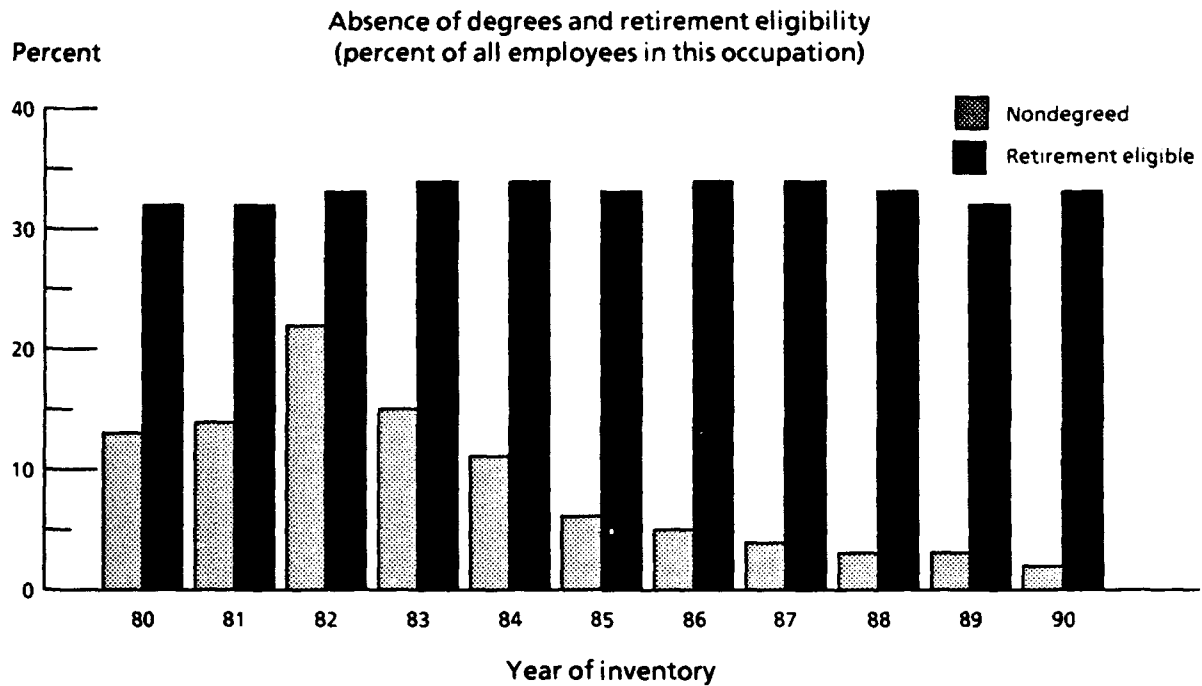
OCCUPATION: 00803 – SAFETY ENGINEERING

1990 Employee Profile
DoD total employed: 379

Selected characteristics

Gender		Citizenship	
Male	343	United States	379
Female	36	Foreign nation	0
Race/ethnicity		Employer	
American Indian	3	Army	201
Asian	22	Navy	73
Black	18	Marine Corps	1
Hispanic	31	Air Force	97
White	305	Defense Agency	7
Other	0	Unknown	0

Academic degree backgrounds

Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Mechanical Engineering	59	53	6	0	0
Second	Industrial and Mgmt. Eng.	54	30	24	0	0
Third	Chemical Engineering	46	42	4	0	0
Fourth	Electrical, Electronics and Communications Eng.	39	37	2	0	0
Fifth	Mechanical Engineering	33	29	4	0	0
	Other fields	135	81	50	4	0
	Nondegreed	12	0	0	0	12
	Unknown	1	0	1	0	0

OCCUPATION: 00803 – SAFETY ENGINEERING
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD employment

Average years since degree

Year of inventory
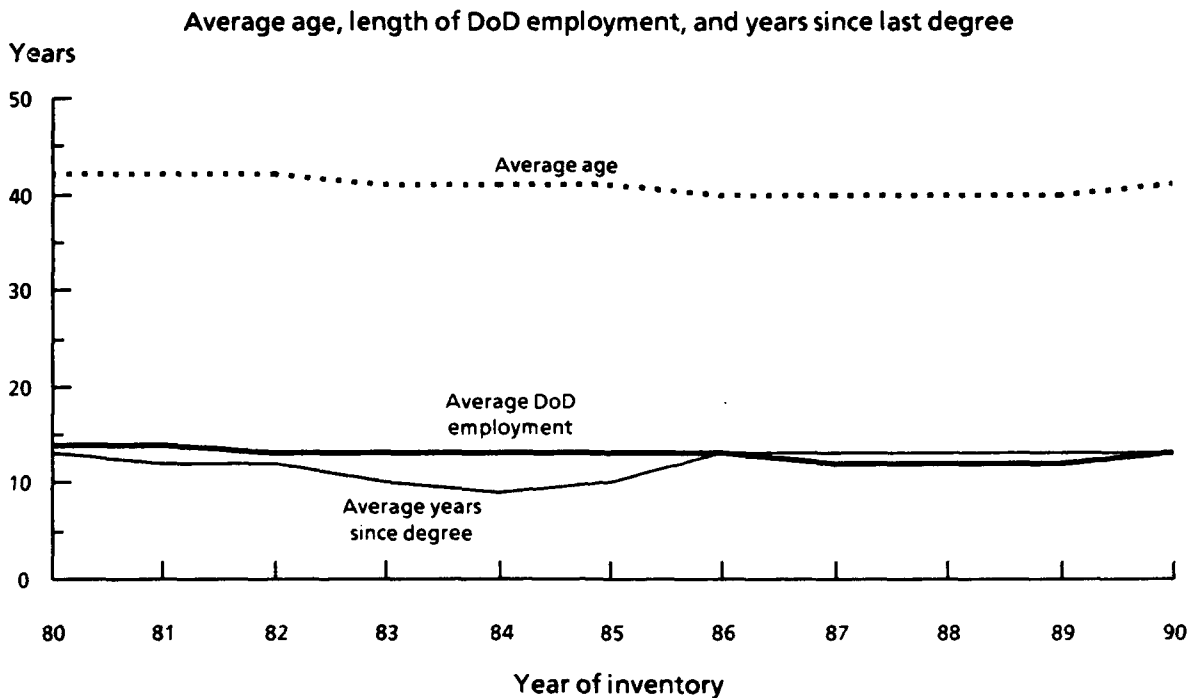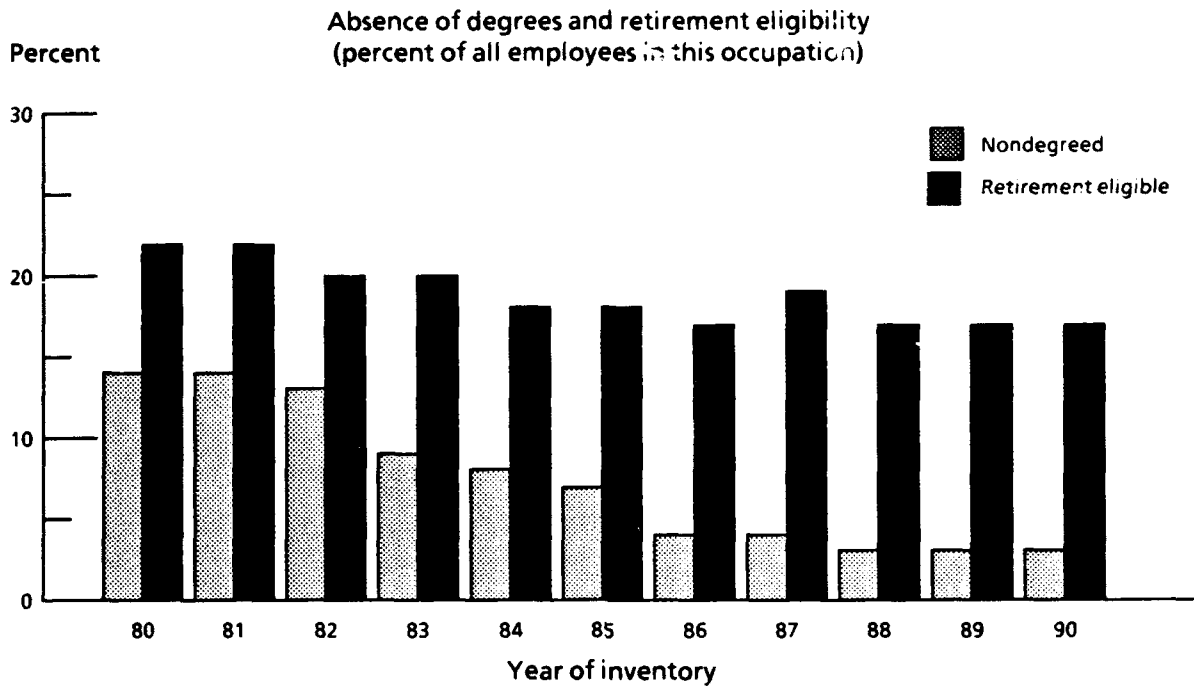
OCCUPATION: 00804 – FIRE PROTECTION ENGINEERING

1990 Employee Profile
DoD total employed: 74

Selected characteristics			
Gender		**Citizenship**	
Male	70	United States	74
Female	4	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	0	Army	12
Asian	11	Navy	48
Black	2	Marine Corps	1
Hispanic	1	Air Force	11
White	60	Defense Agency	2
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			**Number of employees, by degree level**			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Other Engineering	14	14	0	0	0
Second	Mechanical Engineering	9	7	2	0	0
Third	Engineering, General	8	7	1	0	0
Fourth	Civil Engineering	7	7	0	0	0
Fifth	Other Public Affairs	7	7	0	0	0
	Other fields	26	20	6	0	0
	Nondegreed	3	0	0	0	3
	Unknown	0	0	0	0	0

OCCUPATION: 00804 – FIRE PROTECTION ENGINEERING
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Year of inventory

Nondegreed
Retirement eligible

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD
employment

Average years
since degree

Year of inventory
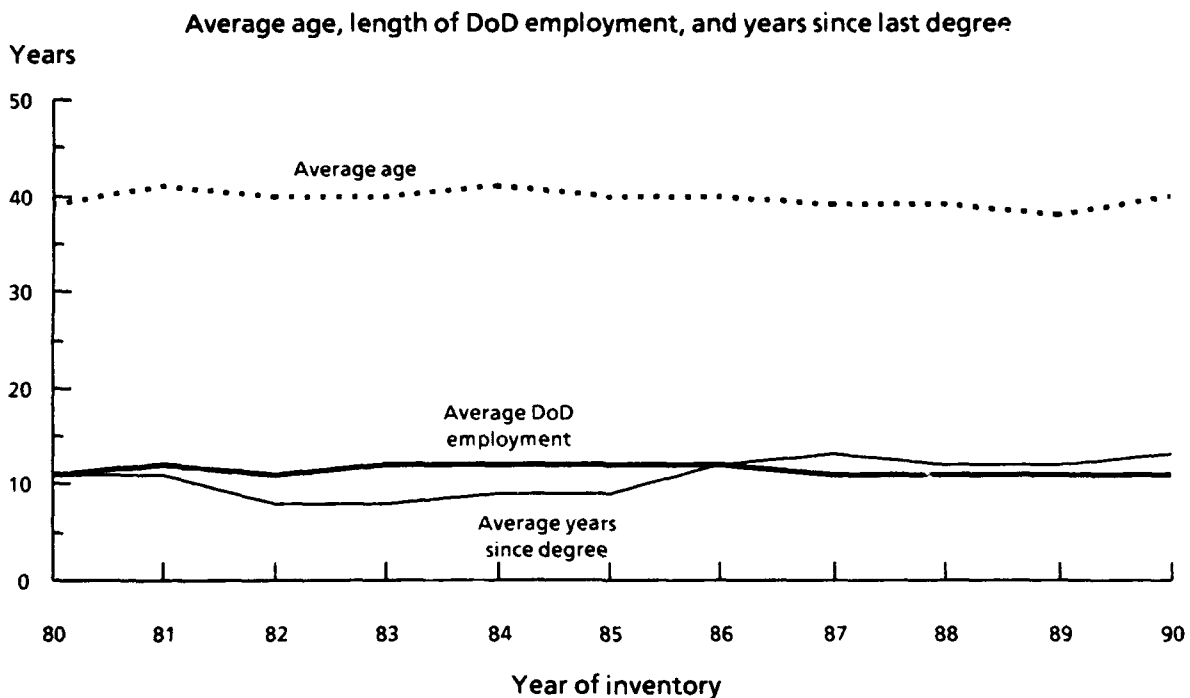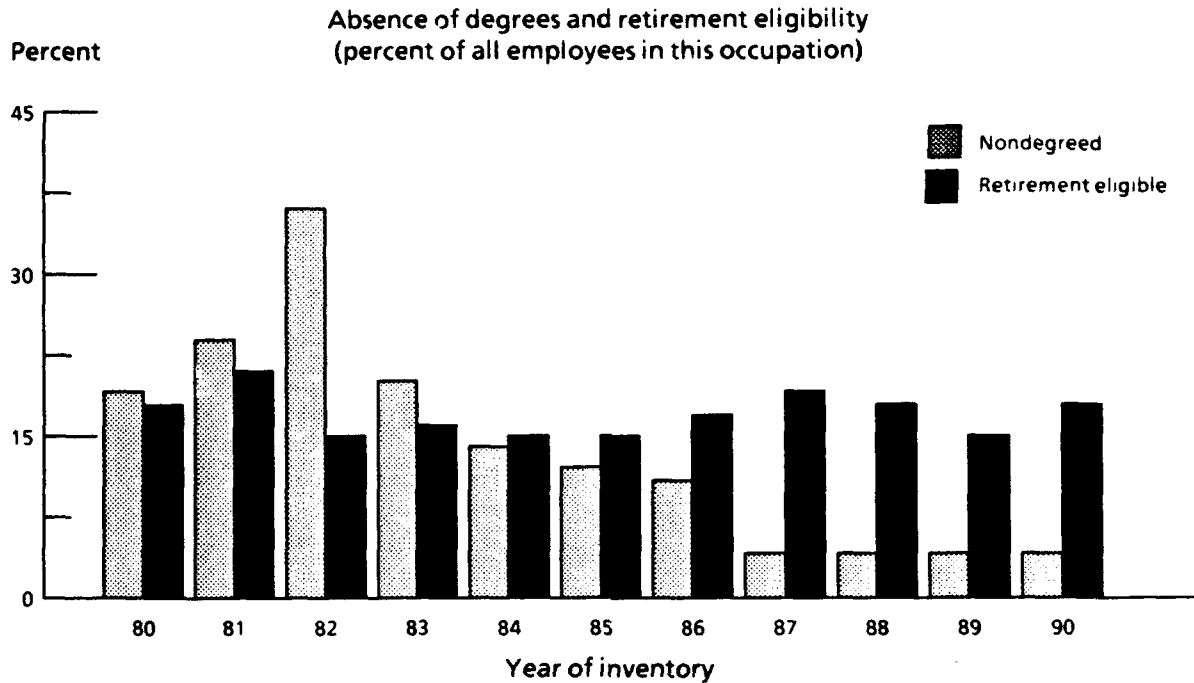
OCCUPATION: 00806 – MATERIALS ENGINEERING

1990 Employee Profile
DoD total employed: 908

Selected characteristics

Gender		Citizenship	
Male	770	United States	907
Female	138	Foreign nation	1
Race/ethnicity		**Employer**	
American Indian	4	Army	208
Asian	64	Navy	415
Black	19	Marine Corps	0
Hispanic	23	Air Force	269
White	798	Defense Agency	16
Other	0	Unknown	0

Academic degree backgrounds

Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Materials Engineering	229	134	71	24	0
Second	Metallurgical Engineering	124	72	41	11	0
Third	Chemical Engineering	109	86	13	10	0
Fourth	Mechanical Engineering	86	55	23	8	0
Fifth	Chemistry, General	72	60	9	3	0
	Other fields	252	108	92	52	0
	Nondegreed	36	0	0	0	36
	Unknown	0	0	0	0	0

OCCUPATION: 00806 – MATERIALS ENGINEERING
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Year of inventory
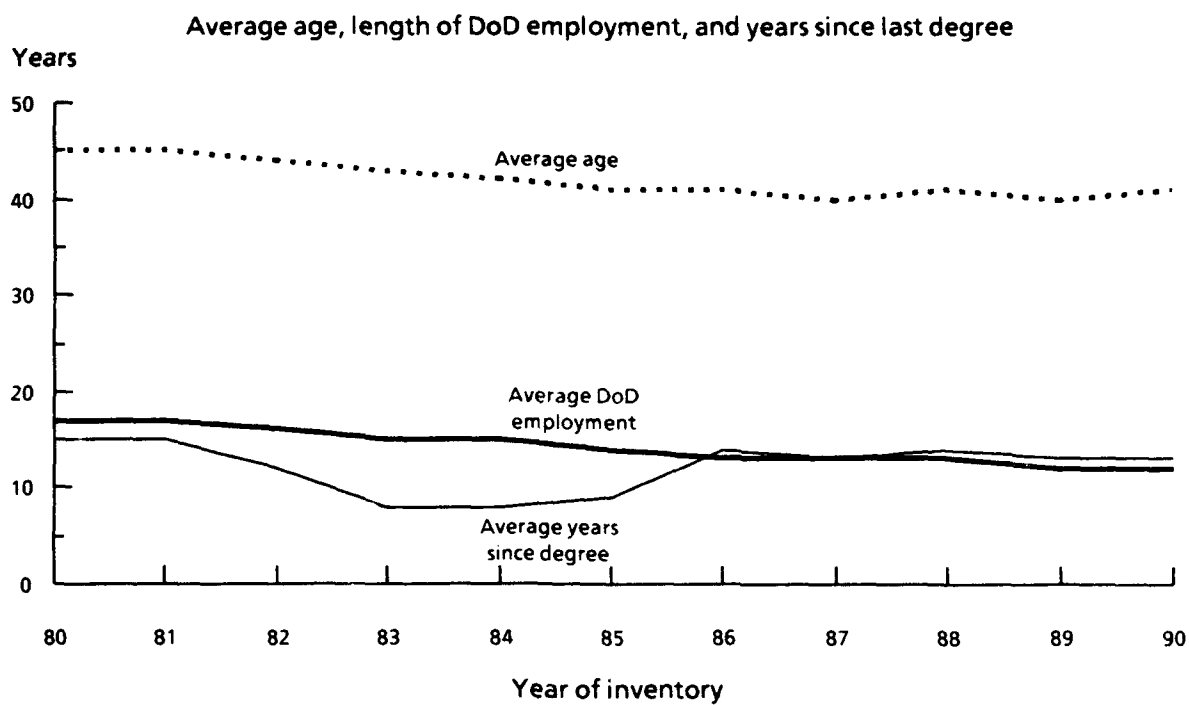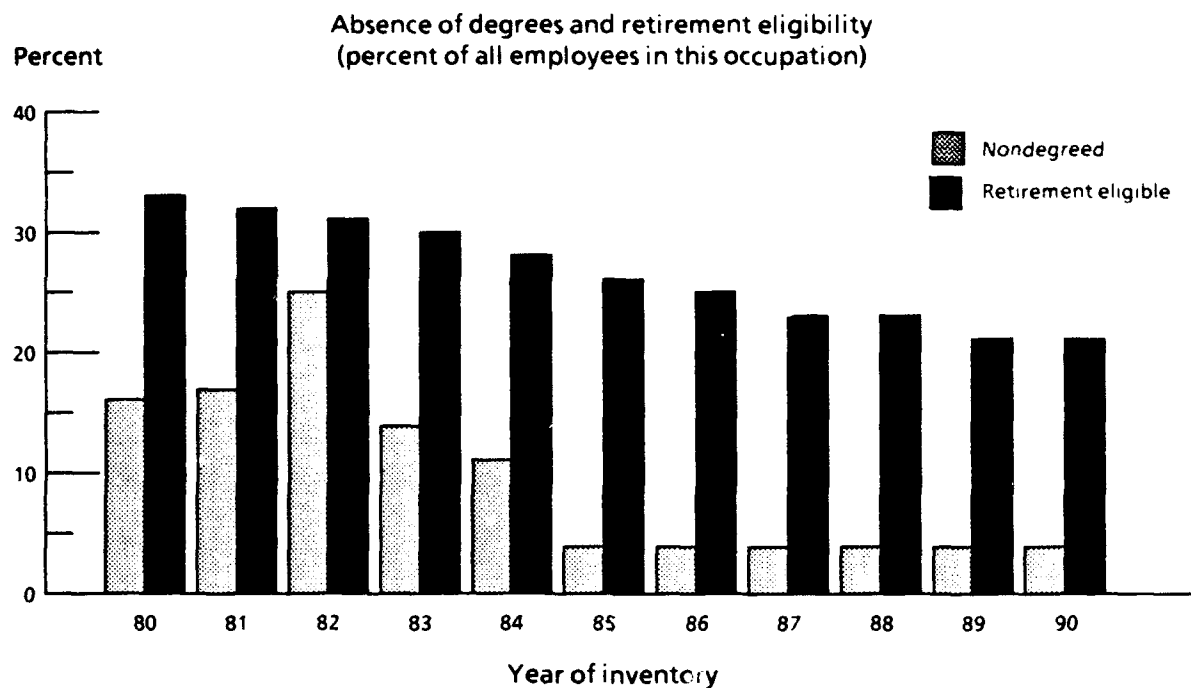
OCCUPATION: 00807 – LANDSCAPE ARCHITECTURE

1990 Employee Profile			
DoD total employed: 172			

Selected characteristics			
Gender		**Citizenship**	
Male	145	United States	172
Female	27	Foreign nation	C
Race/ethnicity		**Employer**	
American Indian	0	Army	129
Asian	9	Navy	29
Black	3	Marine Corps	2
Hispanic	2	Air Force	12
White	158	Defense Agency	0
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Landscape Architecture	131	107	24	0	0
	Other fields	37	25	12	0	0
	Nondegreed	4	0	0	0	4
	Unknown	0	0	0	0	0

OCCUPATION: 00807 – LANDSCAPE ARCHITECTURE
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average years since degree

Average DoD employment

Year of inventory
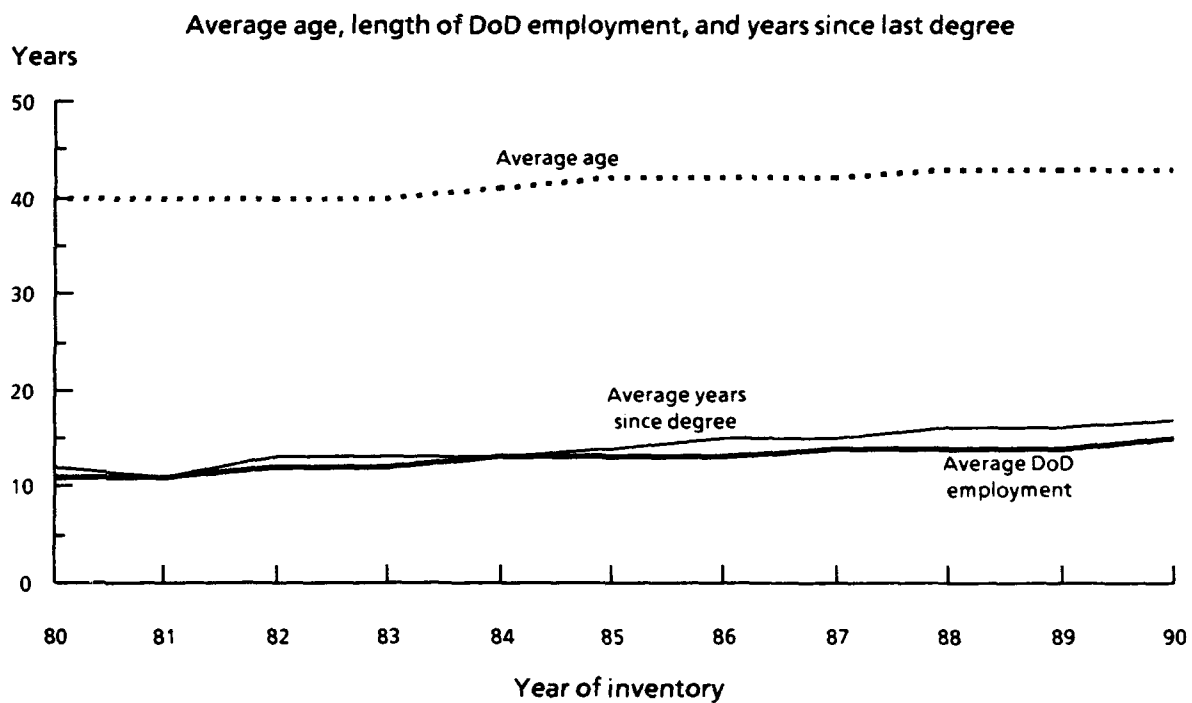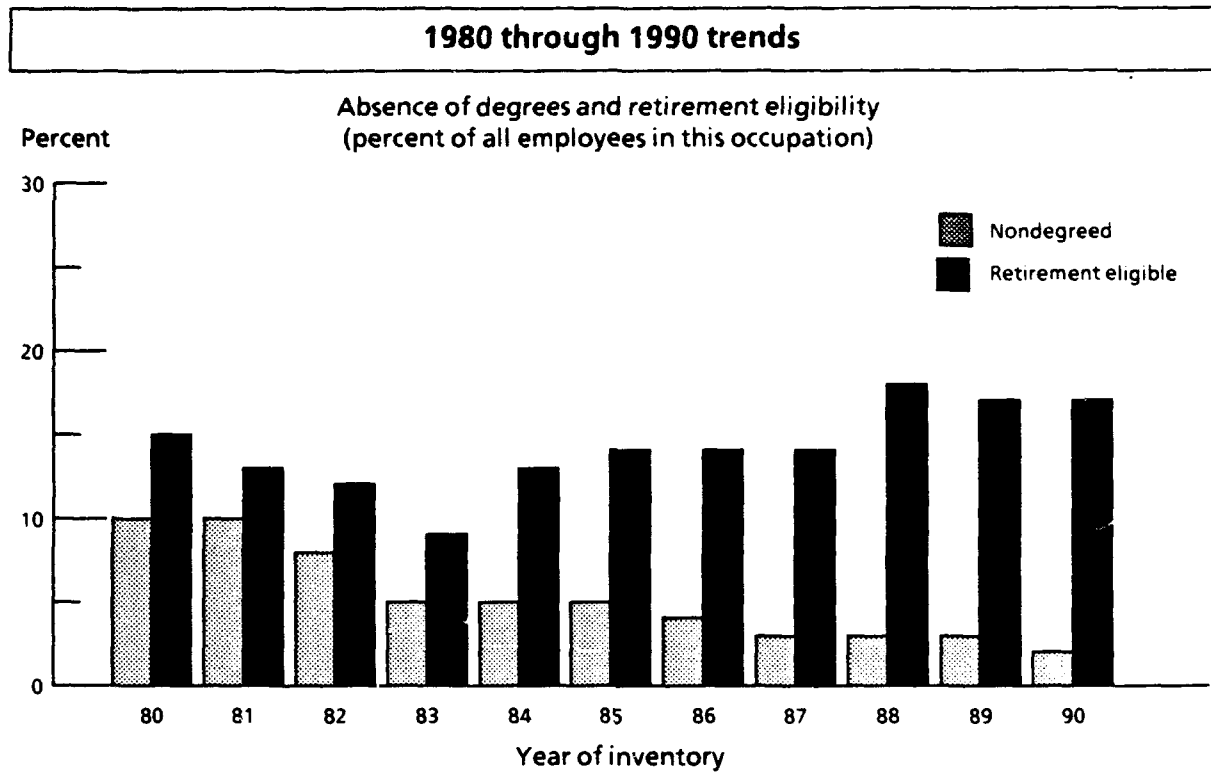
OCCUPATION: 00808 – ARCHITECTURE

1990 Employee Profile
DoD total employed: 1,136

Selected characteristics			
Gender		**Citizenship**	
Male	1,009	United States	1,136
Female	127	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	3	Army	463
Asian	137	Navy	403
Black	94	Marine Corps	22
Hispanic	60	Air Force	243
White	840	Defense Agency	5
Other	2	Unknown	0

Academic degree backgrounds						
Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Architecture	750	617	133	0	0
Second	Architectural Engineering	147	123	24	0	0
Third	Environmental Design, Gen.	25	21	4	0	0
	Other fields	102	70	31	1	0
	Nondegreed	111	0	0	0	111
	Unknown	1	0	1	0	0

OCCUPATION: 00808 – ARCHITECTURE
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average years since degree

Average DoD employment

Year of inventory
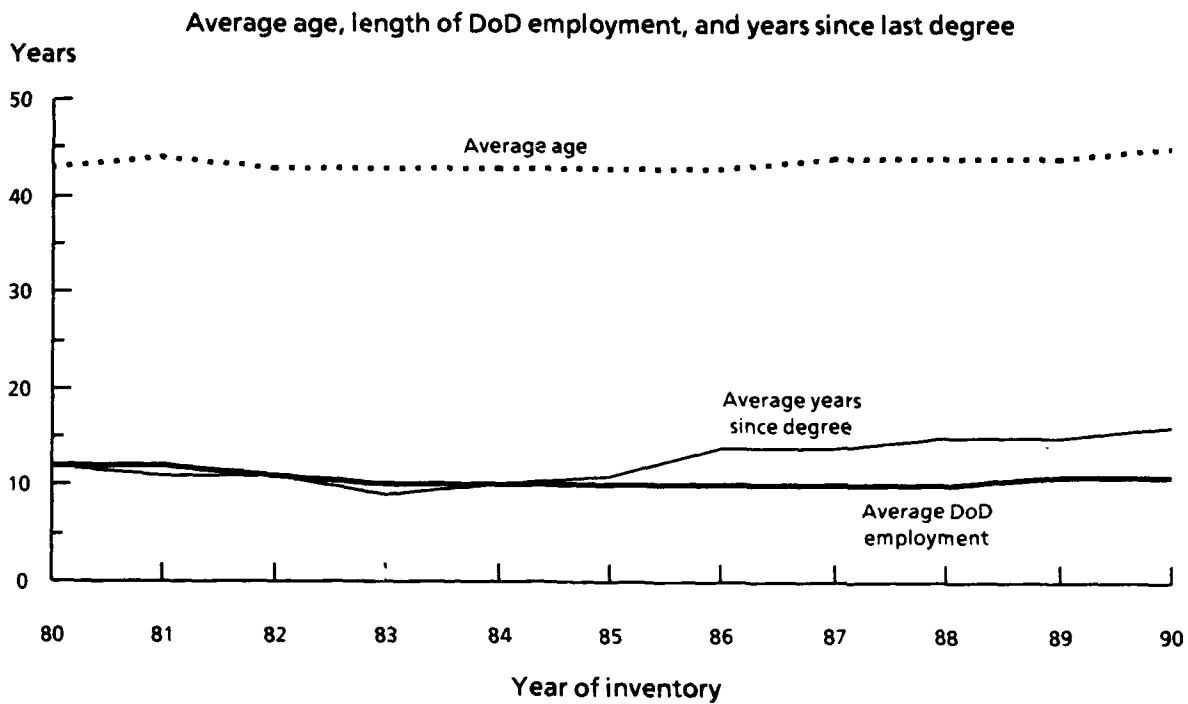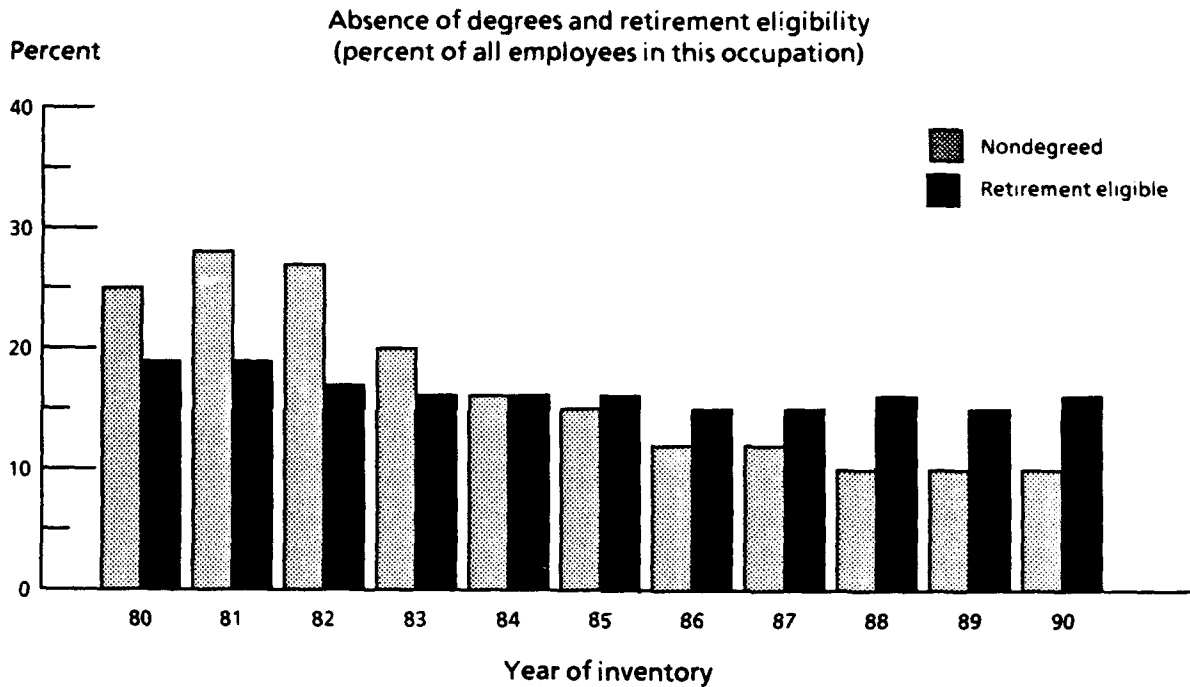
OCCUPATION: 00810 – CIVIL ENGINEERING

1990 Employee Profile
DoD total employed: 9,617

Selected characteristics			
Gender		**Citizenship**	
Male	8,823	United States	9,616
Female	794	Foreign nation	1
Race/ethnicity		**Employer**	
American Indian	40	Army	7,706
Asian	783	Navy	1,197
Black	273	Marine Corps	52
Hispanic	352	Air Force	619
White	8,165	Defense Agency	43
Other	4	Unknown	0

Academic degree backgrounds						
Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Civil Engineering	6,940	5,641	1,212	87	0
Second	Engineering, General	425	336	75	14	0
Third	Mechanical Engineering	272	235	36	1	0
	Other fields	307	0	0	0	307
	Nondegreed	309	0	0	0	309
	Unknown	6	4	2	0	0

OCCUPATION: 00810 – CIVIL ENGINEERING
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

- Average age
- Average DoD employment
- Average years since degree

Year of inventory
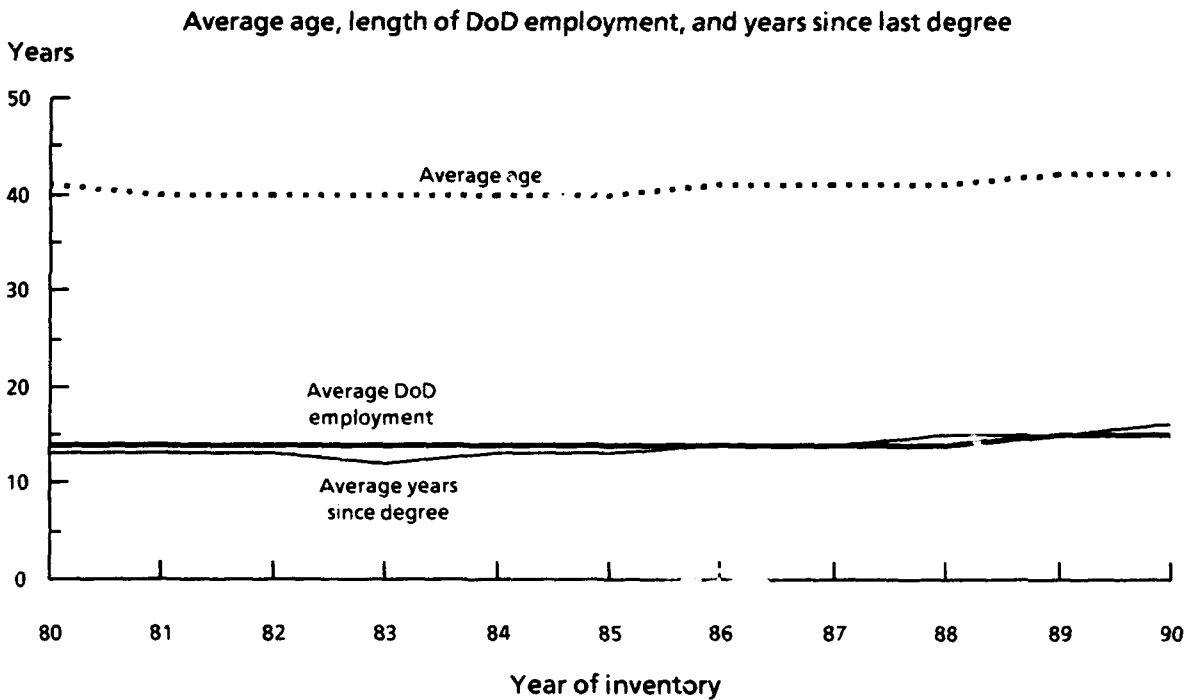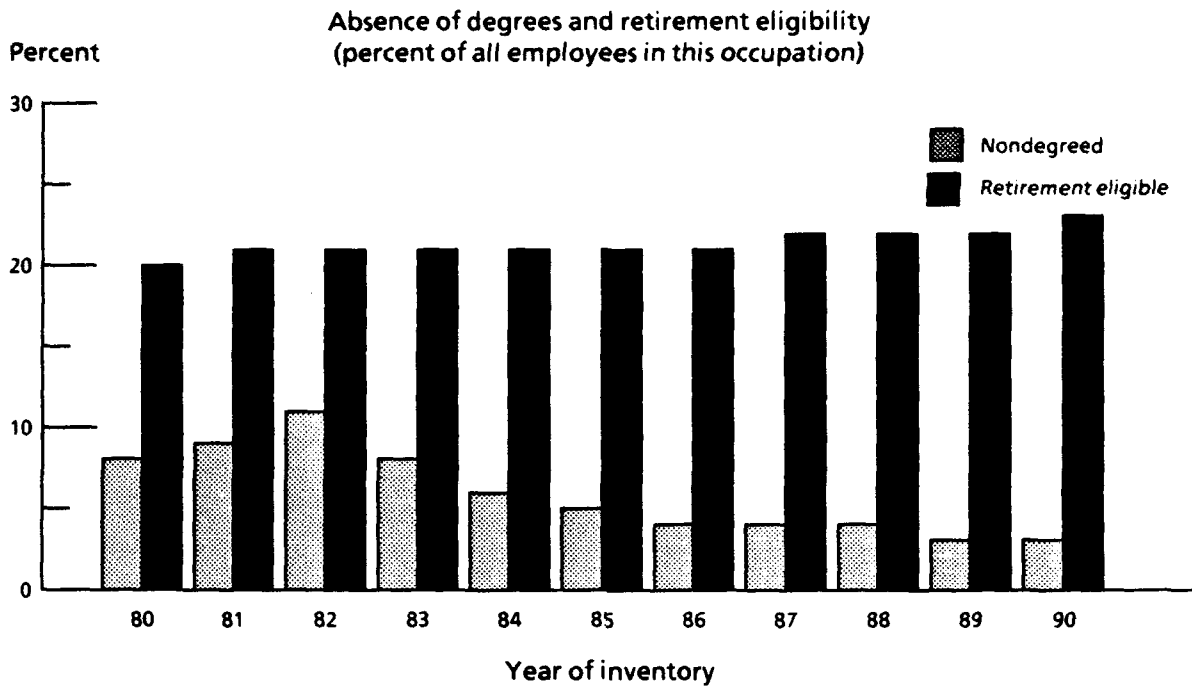
OCCUPATION: 00819 – ENVIRONMENTAL ENGINEERING

1990 Employee Profile
DoD total employed: 1,195

Selected characteristics			
Gender		Citizenship	
Male	997	United States	1,195
Female	198	Foreign nation	0
Race/ethnicity		Employer	
American Indian	5	Army	435
Asian	131	Navy	461
Black	31	Marine Corps	21
Hispanic	43	Air Force	267
White	985	Defense Agency	11
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Civil Engineering	336	253	76	7	0
Second	Environ. and Sanitary Eng.	252	97	144	11	0
Third	Chemical Engineering	157	123	31	3	0
Fourth	Mechanical Engineering	73	57	15	1	0
	Other fields	346	227	112	7	0
	Nondegreed	31	0	0	0	31
	Unknown	0	0	0	0	0

OCCUPATION: 00819 – ENVIRONMENTAL ENGINEERING
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Nondegreed

Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average years
since degree

Average DoD
employment

Year of inventory
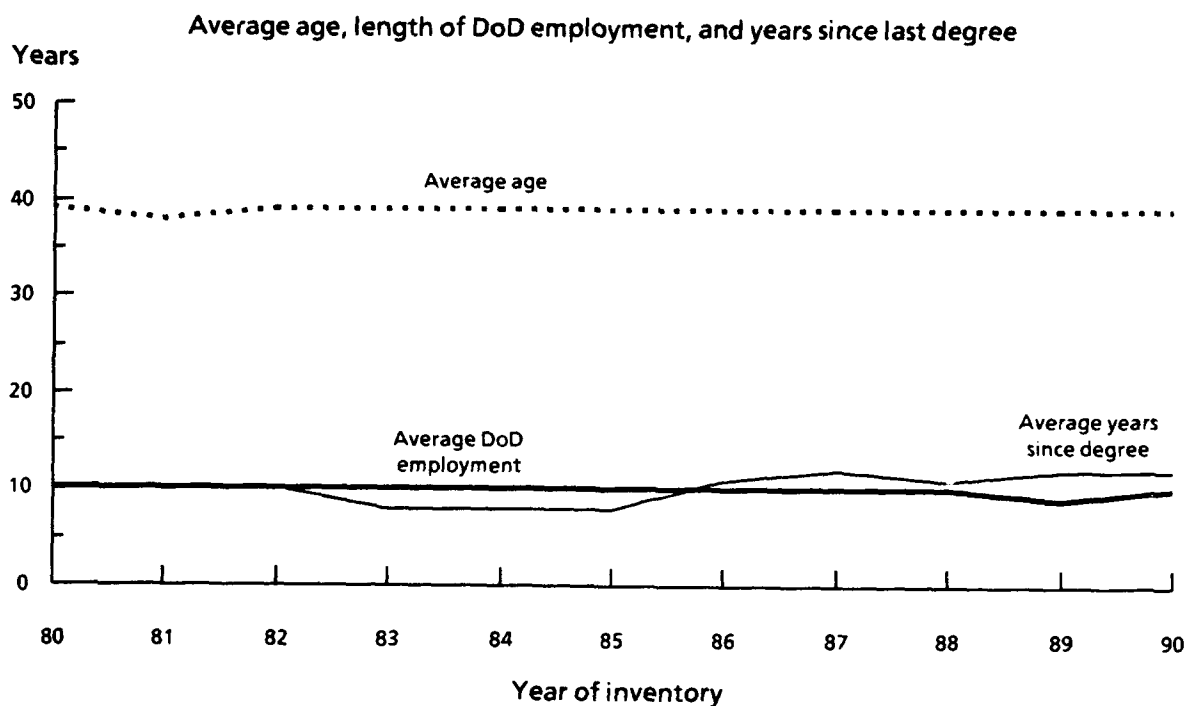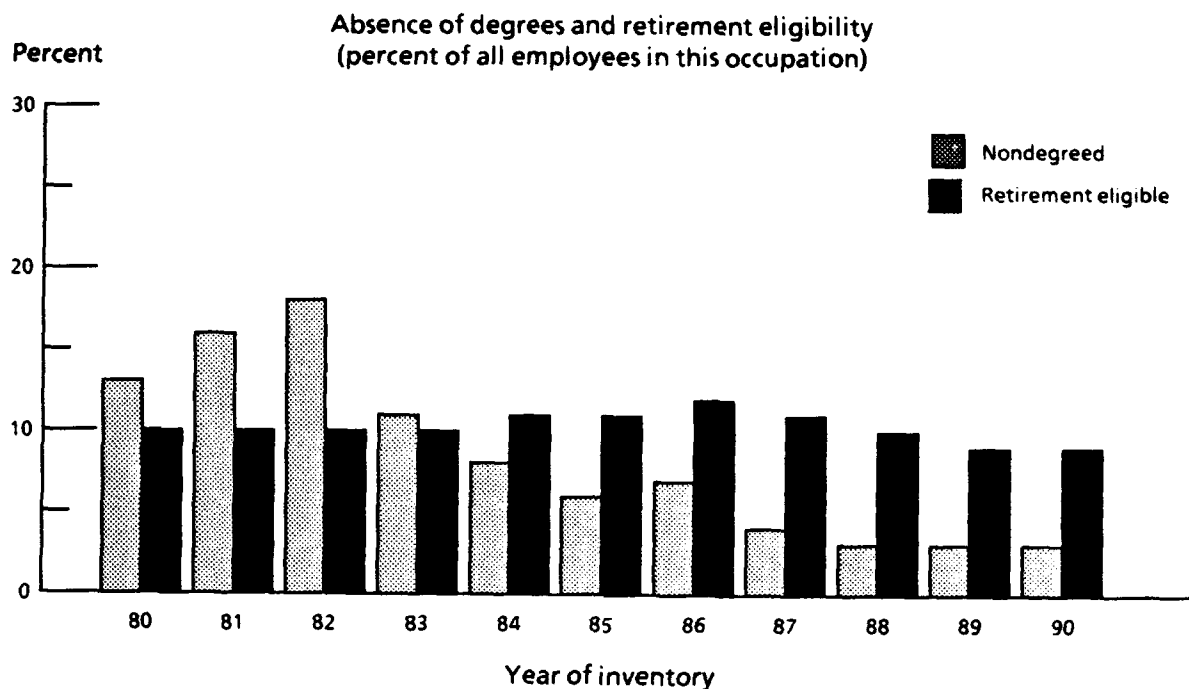
OCCUPATION: 00830 – MECHANICAL ENGINEERING

1990 Employee Profile
DoD total employed: 11,936

Selected characteristics

Gender		Citizenship	
Male	9,314	United States	10,030
Female	717	Foreign nation	1
Race/ethnicity		**Employer**	
American Indian	45	Army	3,000
Asian	1,113	Navy	5,678
Black	387	Marine Corps	39
Hispanic	353	Air Force	1,119
White	10,038	Defense Agency	195
Other	0	Unknown	0

Academic degree backgrounds

Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Mechanical Engineering	7,970	6,957	888	125	0
Second	Engineering, General	443	367	72	5	0
Third	Engineering Mechanics	390	302	51	37	0
Fourth	Aerospace, Aeronautical, and Astronautical Eng.	261	205	41	15	0
Fifth	Electrical, Electronics, and Communications Eng.	242	217	21	4	0
	Other fields	2,241	1,638	539	64	0
	Nondegreed	383	0	0	0	383
	Unknown	6	4	2	0	0

OCCUPATION: 00830 – MECHANICAL ENGINEERING
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD employment

Average years since degree

Year of inventory
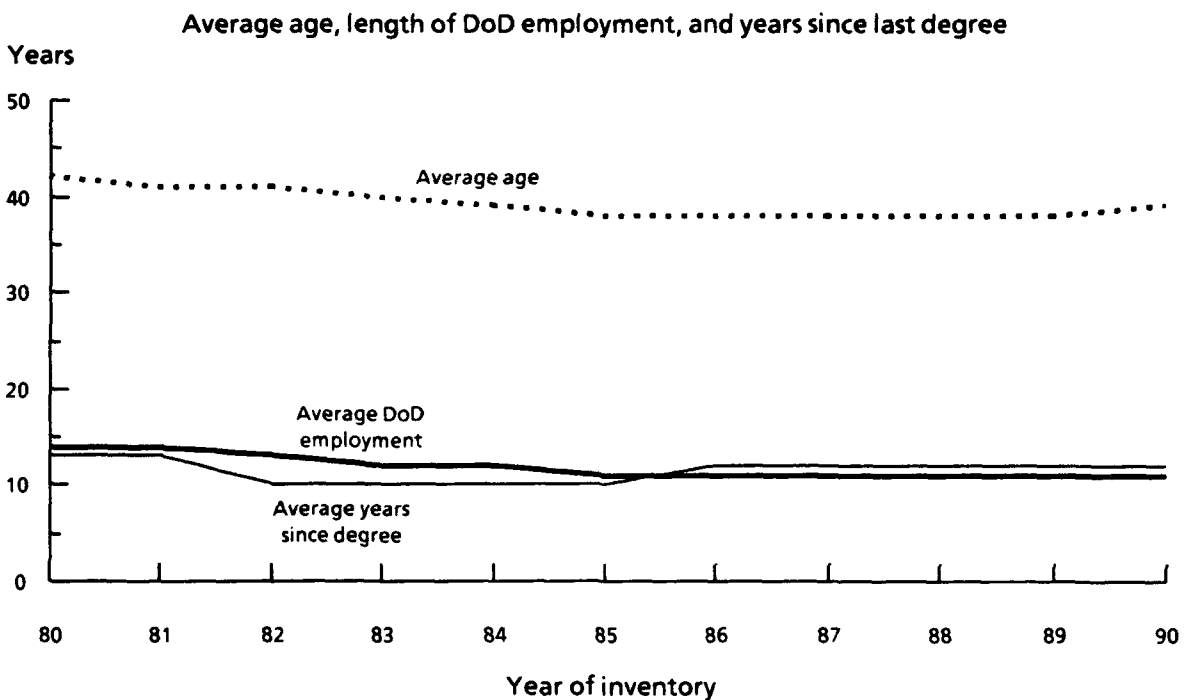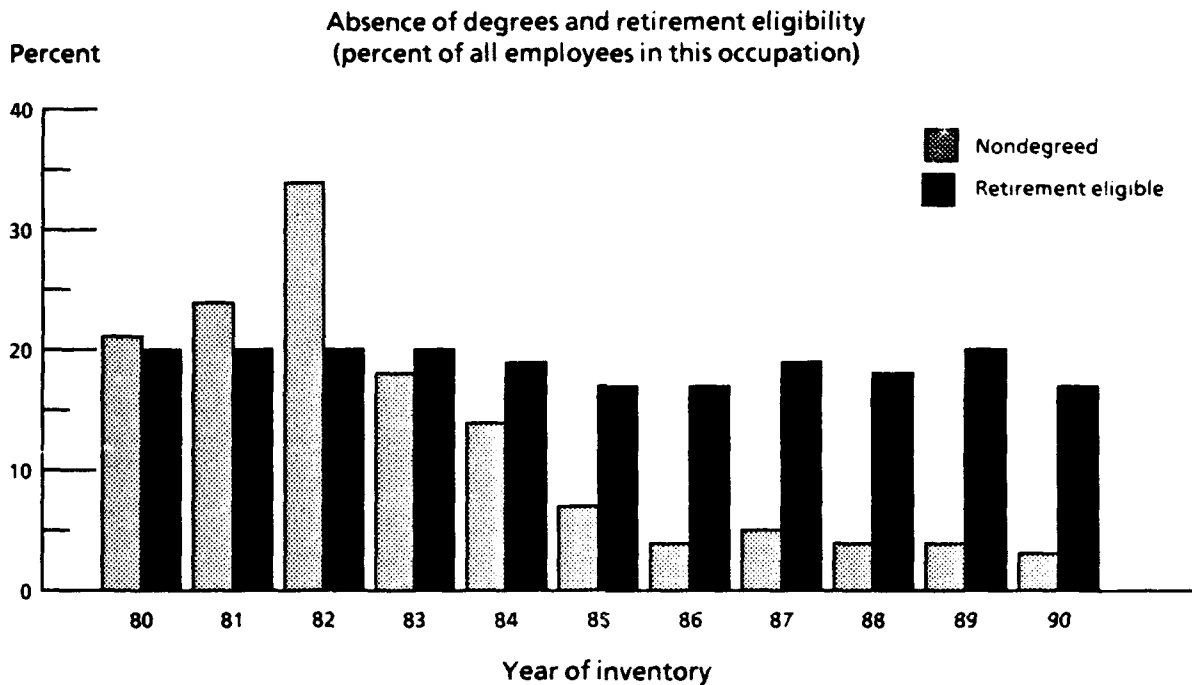
OCCUPATION: 00840 – NUCLEAR ENGINEERING

1990 Employee Profile
DoD total employed: 2,610

Selected characteristics			
Gender		**Citizenship**	
Male	2,245	United States	2,610
Female	365	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	9	Army	8
Asian	349	Navy	2,582
Black	44	Marine Corps	0
Hispanic	25	Air Force	11
White	2,183	Defense Agency	9
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			**Number of employees, by degree level**			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Mechanical Engineering	916	886	30	0	0
Second	Electrical, Electronics, and Communications Eng.	369	348	20	1	0
Third	Nuclear Engineering	208	169	32	7	0
Fourth	Chemical Engineering	195	187	8	0	0
Fifth	Civil Engineering	180	174	6	0	0
	Other fields	686	592	90	4	0
	Nondegreed	56	0	0	0	56
	Unknown	0	0	0	0	0

OCCUPATION: 00840 – NUCLEAR ENGINEERING
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Nondegreed
Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD employment

Average years since degree

Year of inventory
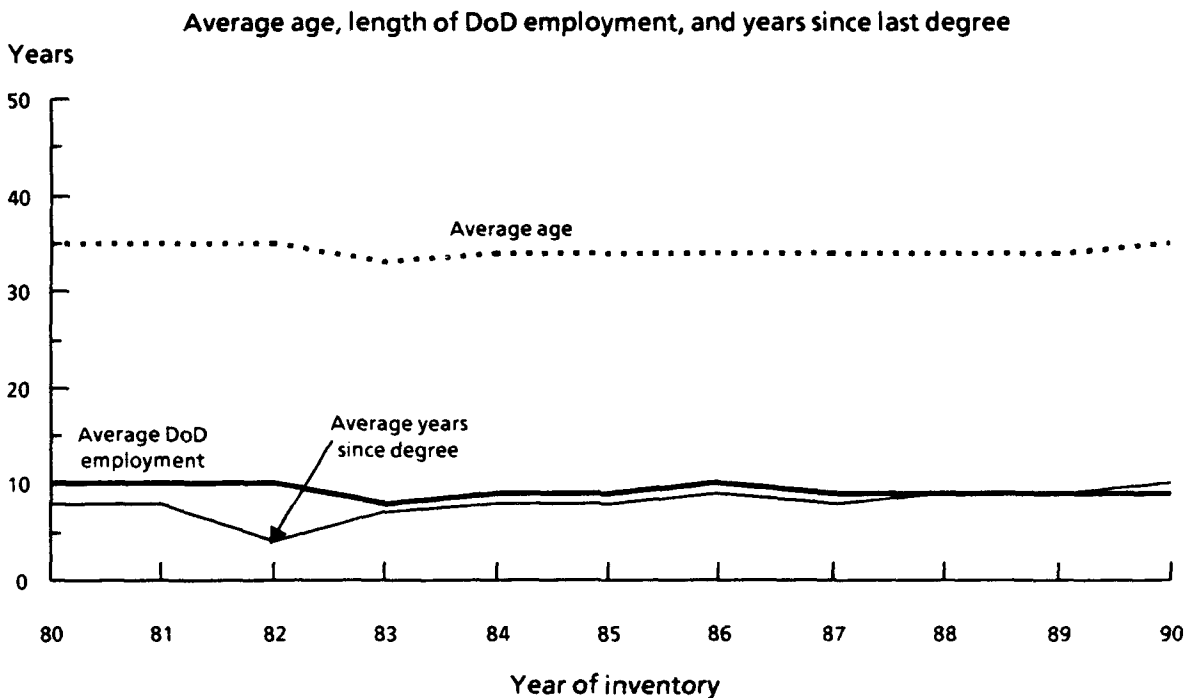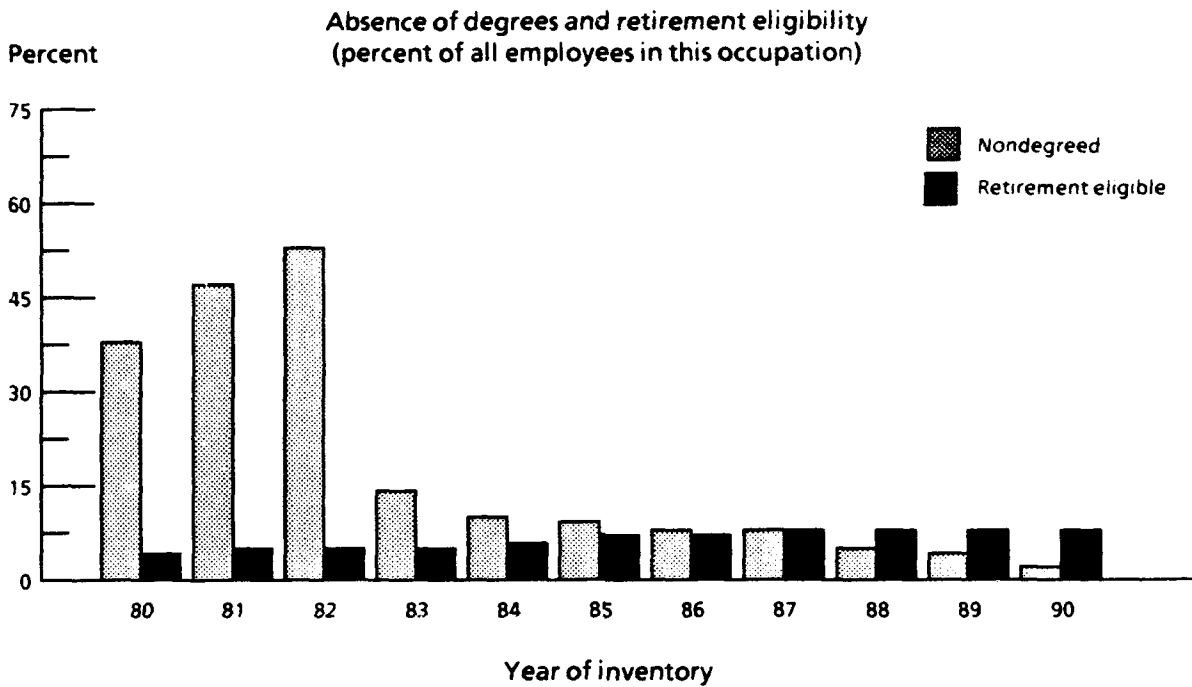
OCCUPATION: 00850 – ELECTRICAL ENGINEERING

1990 Employee Profile
DoD total employed: 3,003

Selected characteristics			
Gender		Citizenship	
Male	2,780	United States	3,002
Female	223	Foreign nation	1
Race/ethnicity		Employer	
American Indian	10	Army	979
Asian	499	Navy	1,609
Black	153	Marine Corps	21
Hispanic	97	Air Force	364
White	2,244	Defense Agency	30
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Electrical, Electronics, and Communications Eng.	2,294	2,085	190	19	0
Second	General Engineering	125	112	12	1	0
Third	Mechanical Engineering	86	78	7	1	0
	Other fields	369	252	111	6	0
	Nondegreed	123	0	0	0	123
	Unknown	6	6	0	0	0

OCCUPATION: 00850 – ELECTRICAL ENGINEERING
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD employment

Average years since degree

Year of inventory
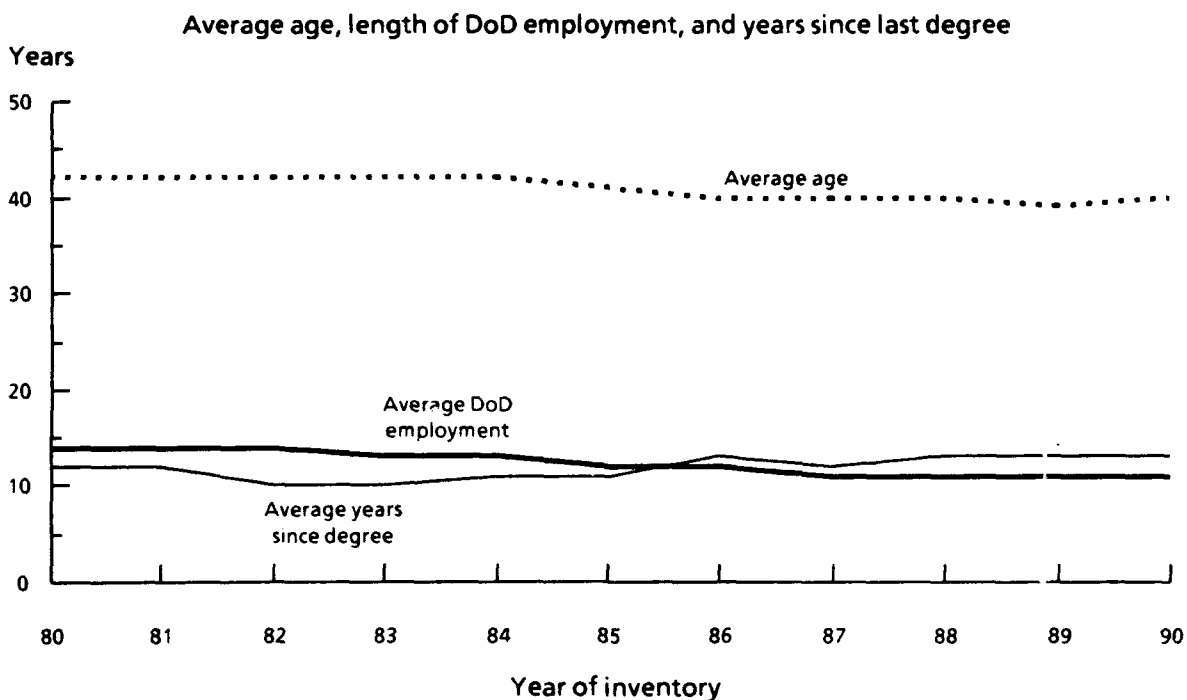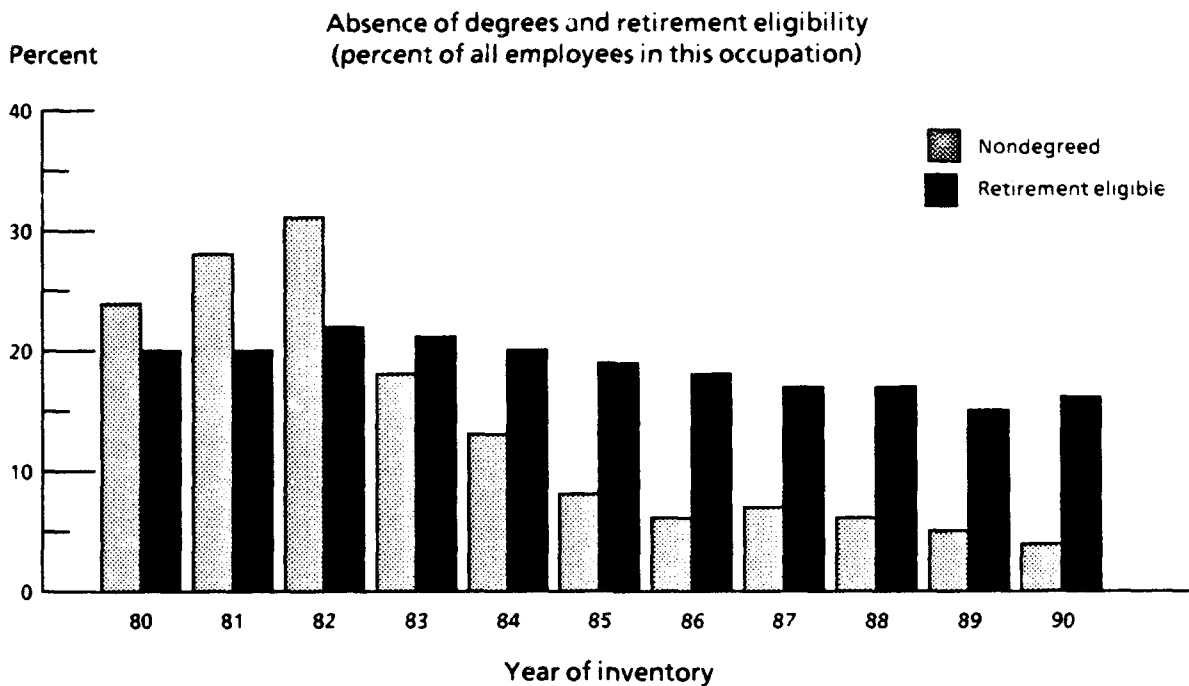
OCCUPATION: 00855 – ELECTRONICS ENGINEERING

1990 Employee Profile
DoD total employed: 25,578

Selected characteristics			
Gender		**Citizenship**	
Male	23,718	United States	25,576
Female	1,860	Foreign nation	2
Race/ethnicity		**Employer**	
American Indian	73	Army	4,831
Asian	2,669	Navy	14,122
Black	968	Marine Corps	27
Hispanic	989	Air Force	5,657
White	20,876	Defense Agency	941
Other	3	Unknown	0

Academic degree backgrounds						
Academic major			**Number of employees, by degree level**			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Electrical, Electronics, and Communications Eng.	18,266	15,417	2,533	316	0
Second	Physics, General	1,029	485	464	80	0
Third	Engineering, General	754	568	169	17	0
Fourth	Mechanical Engineering	737	639	88	10	0
Fifth	Business Mgmt. and Admin.	514	72	435	7	0
Sixth	Other Engineering	362	147	210	5	0
Seventh	Computer and Info. Science	313	106	200	7	0
	Other fields	2,898	1,832	927	139	0
	Nondegreed	701	0	0	0	701
	Unknown	4	3	1	0	0

OCCUPATION: 00855 – ELECTRONICS ENGINEERING
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Average age, length of DoD employment, and years since last degree
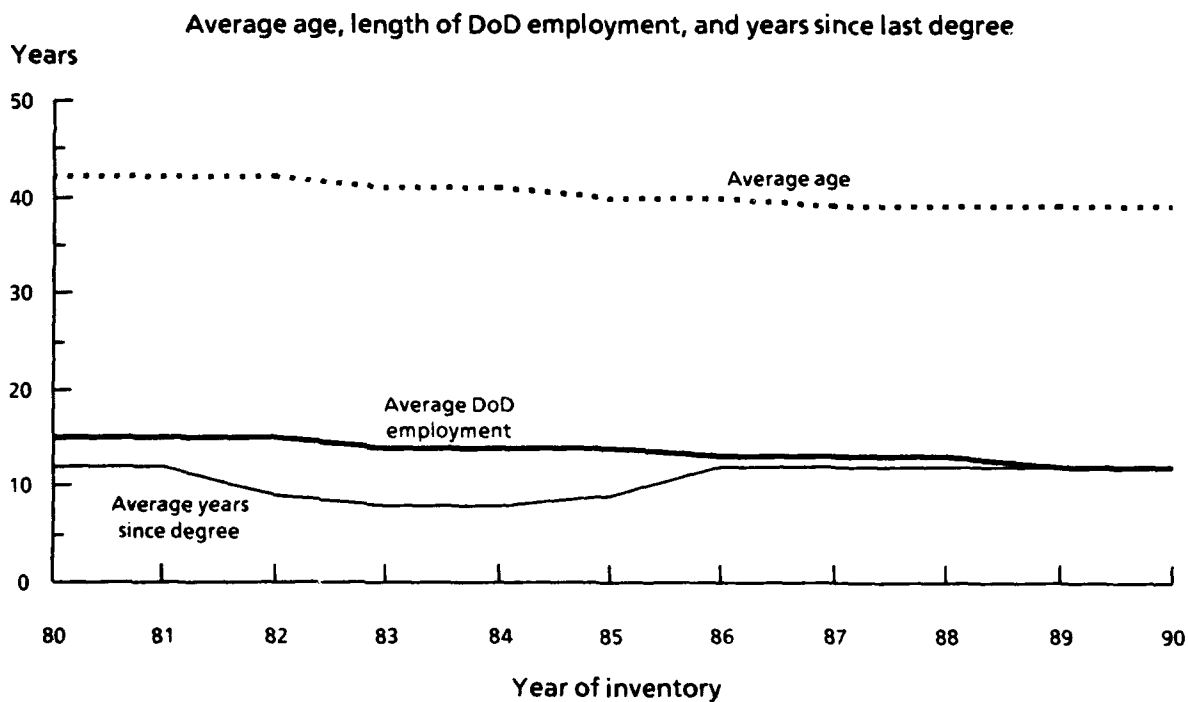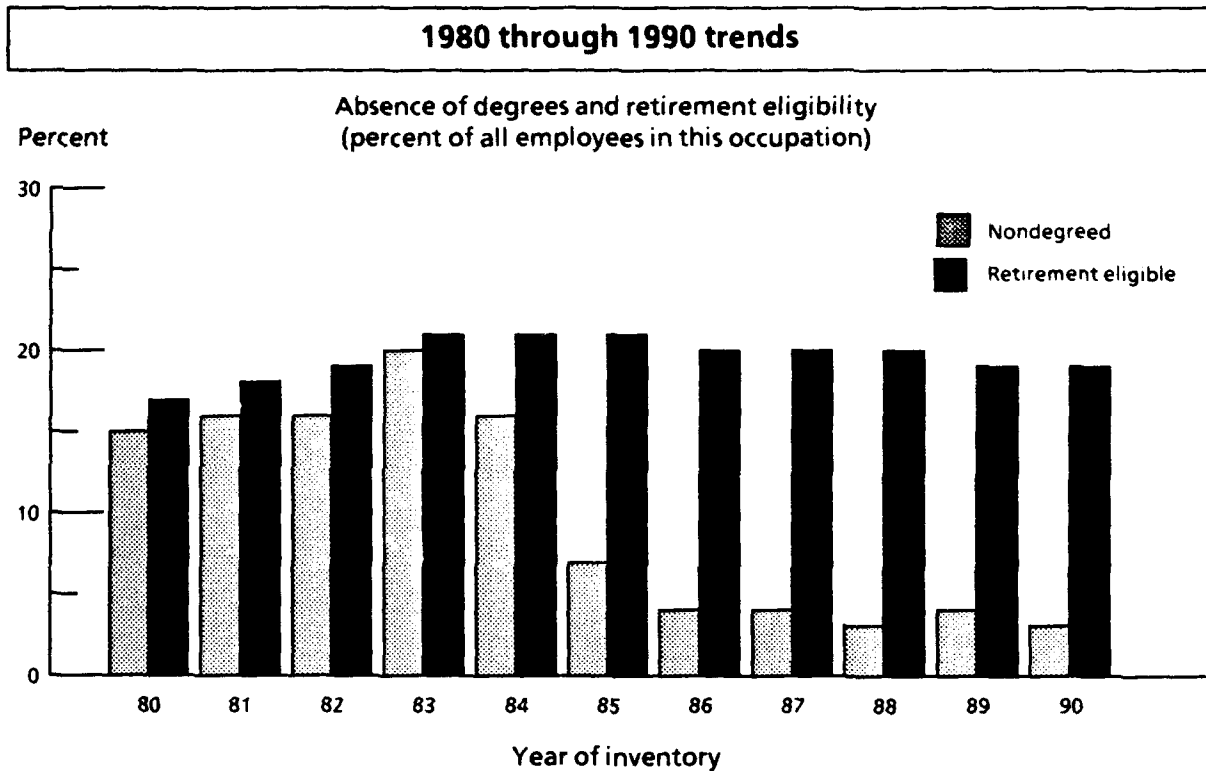
OCCUPATION: 00858 – BIOMEDICAL ENGINEERING

1990 Employee Profile
DoD total employed: 54

Selected characteristics			
Gender		**Citizenship**	
Male	40	United States	54
Female	14	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	0	Army	18
Asian	1	Navy	13
Black	4	Marine Corps	0
Hispanic	1	Air Force	14
White	48	Defense Agency	9
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			**Number of employees, by degree level**			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Bioengineering and Biomedical Engineering	33	19	1	2	0
Second	Mechanical Engineering	7	5	8	1	0
	Other fields	14	0	0	0	0
	Nondegreed	0	0	0	0	0
	Unknown	0	8	6	0	0

OCCUPATION: 00858 – BIOMEDICAL ENGINEERING
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD employment

Average years since degree

Year of inventory
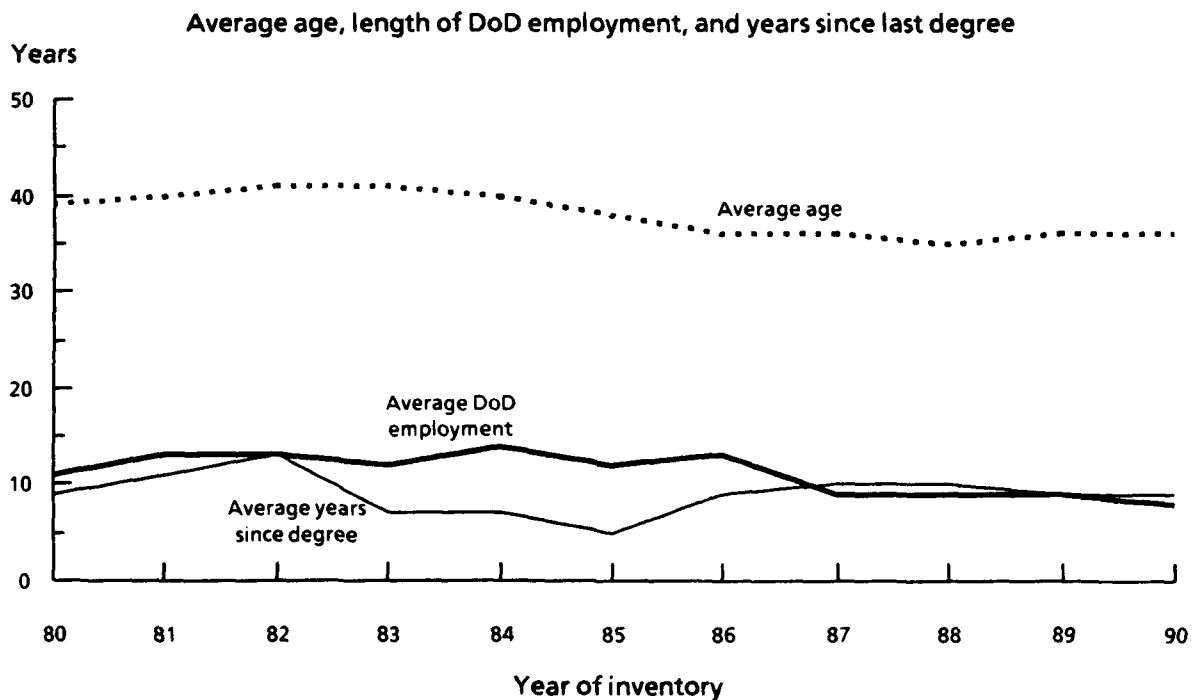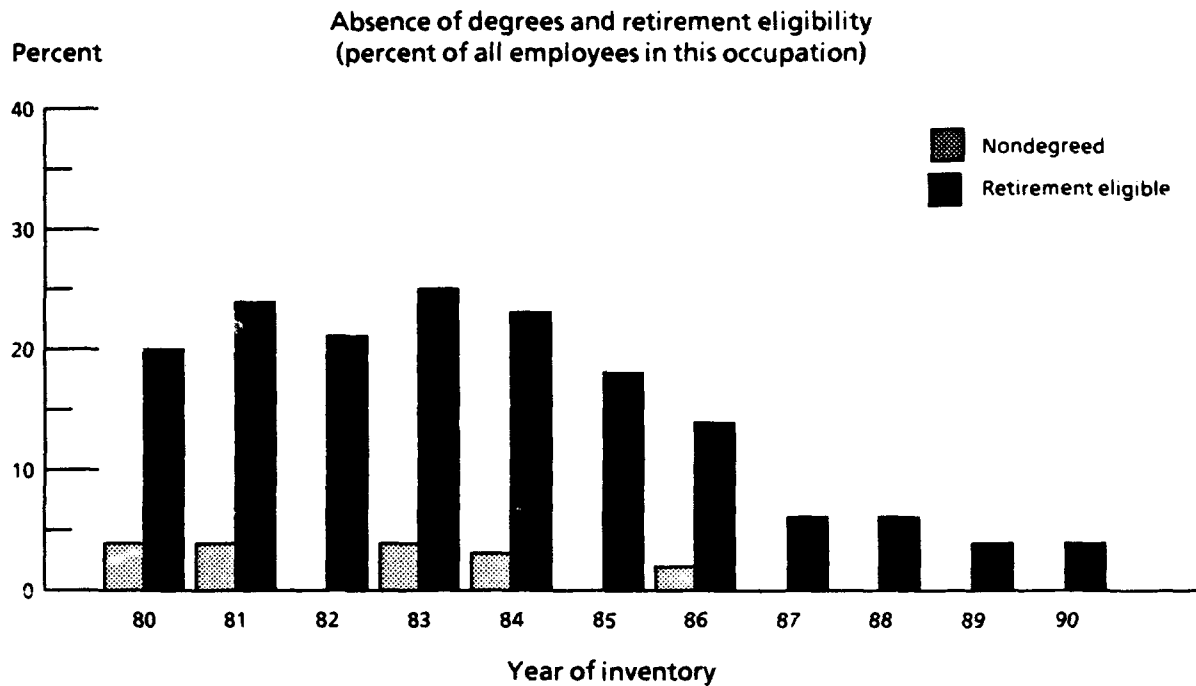
OCCUPATION: 00861 – AEROSPACE ENGINEERING

1990 Employee Profile
DoD total employed: 4,775

Selected characteristics			
Gender		**Citizenship**	
Male	4,467	United States	4,771
Female	308	Foreign nation	4
Race/ethnicity		**Employer**	
American Indian	12	Army	797
Asian	210	Navy	1,978
Black	91	Marine Corps	0
Hispanic	118	Air Force	1,822
White	4,344	Defense Agency	178
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			**Number of employees, by degree level**			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Aerospace, Aeronautical, and Astronautical Eng.	2,364	1,876	398	90	0
Second	Mechanical Engineering	1,163	896	228	39	0
Third	Engineering, General	148	99	46	3	0
Fourth	Business Mgmt. and Admin.	137	32	105	0	0
	Other fields	877	535	296	46	0
	Nondegreed	85	0	0	0	85
	Unknown	1	0	1	0	0

OCCUPATION: 00861 – AEROSPACE ENGINEERING
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

40 —
30 —
20 —
10 —
0 —

Year of inventory
(80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90)

Average age, length of DoD employment, and years since last degree

Years

50 —
40 —
30 —
20 —
10 —
0 —

Average age

Average DoD
employment

Average years
since degree

Year of inventory
(80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90)
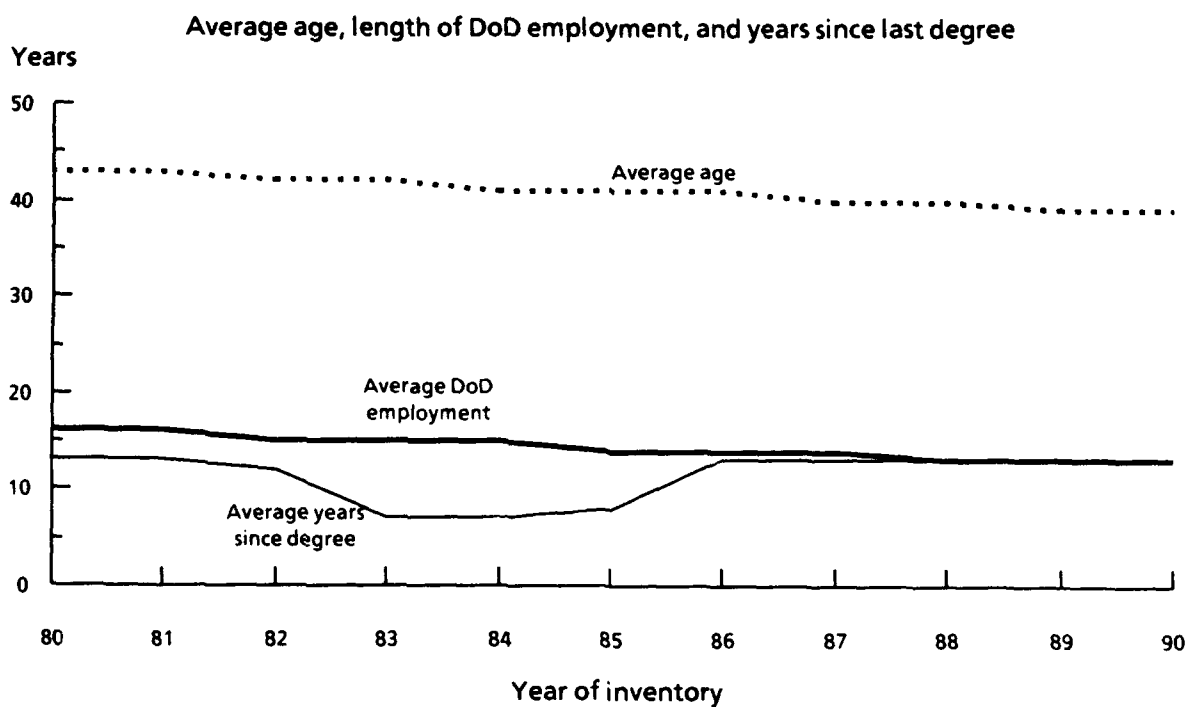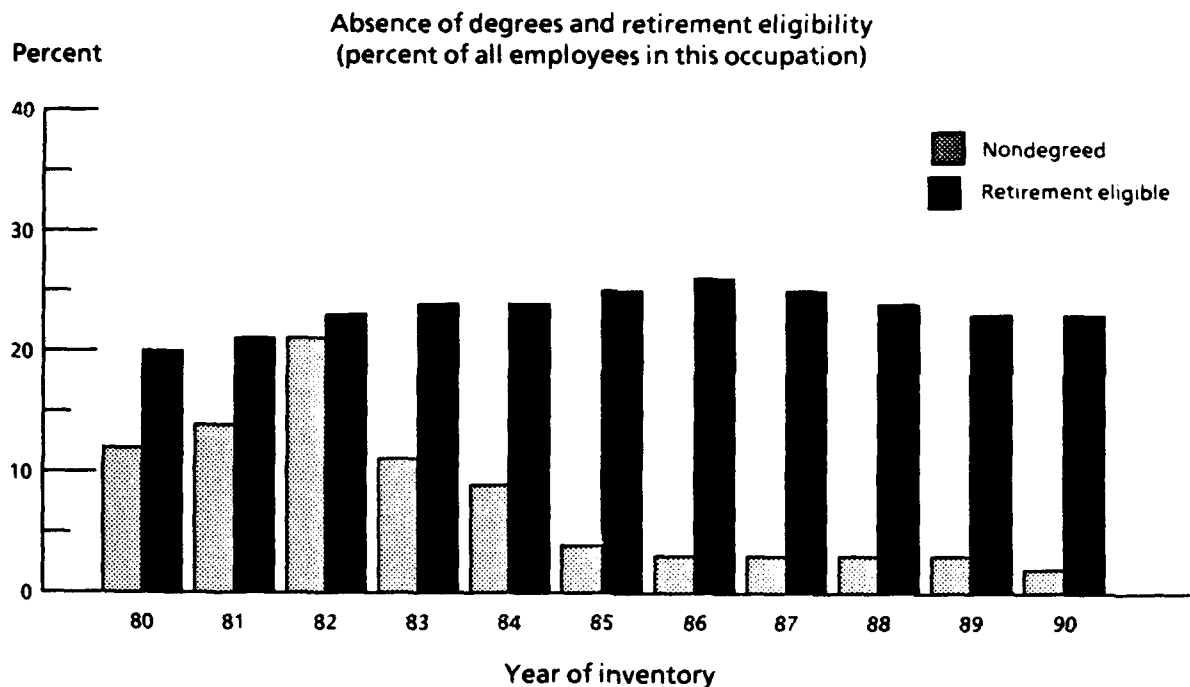
OCCUPATION: 00871 – NAVAL ARCHITECTURE

1990 Employee Profile
DoD total employed: 1,189

Selected characteristics

Gender		Citizenship	
Male	1,104	United States	1,189
Female	85	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	1	Army	10
Asian	125	Navy	1,178
Black	37	Marine Corps	0
Hispanic	20	Air Force	0
White	1,006	Defense Agency	1
Other	0	Unknown	0

Academic degree backgrounds

	Academic major		Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Second	Civil Engineering	323	296	22	5	0
Highest	Naval Architecture and Marine Engineering	255	183	58	14	0
Third	Mechanical Engineering	189	147	33	9	0
Fourth	Engineering, General	41	37	4	0	0
	Other fields	333	242	79	12	0
	Nondegreed	48	0	0	0	48
	Unknown	0	0	0	0	0

OCCUPATION: 00871 – NAVAL ARCHITECTURE
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD
employment

Average years
since degree

Year of inventory

OCCUPATION: 00880 – MINING ENGINEERING

1990 Employee Profile
DoD total employed: 1

Selected characteristics			
Gender		**Citizenship**	
Male	1	United States	1
Female	0	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	0	Army	0
Asian	0	Navy	0
Black	0	Marine Corps	0
Hispanic	0	Air Force	0
White	1	Defense Agency	1
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Metallurgical Engineering	1	0	1	0	0
	Other fields	0	0	0	0	0
	Nondegreed	0	0	0	0	0
	Unknown	0	0	0	0	0

OCCUPATION: 00880 – MINING ENGINEERING
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Nondegreed

Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average years
since degree

Average DoD
employment

Year of inventory

OCCUPATION: 00881 – PETROLEUM ENGINEERING

1990 Employee Profile
DoD total employed: 4

Selected characteristics			
Gender		Citizenship	
Male	4	United States	4
Female	0	Foreign nation	0
Race/ethnicity		Employer	
American Indian	0	Army	1
Asian	0	Navy	1
Black	0	Marine Corps	0
Hispanic	0	Air Force	2
White	4	Defense Agency	0
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Petroleum Engineering	3	3	0	0	0
Second	Mechanical Engineering	1	1	0	0	0
	Other fields	0	0	0	0	0
	Nondegreed	0	0	0	0	0
	Unknown	0	0	0	0	0

OCCUPATION: 00881 – PETROLEUM ENGINEERING
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

- Average age
- Average years since degree
- Average DoD employment

Year of inventory

OCCUPATION: 00892 – CERAMIC ENGINEERING

1990 Employee Profile
DoD total employed: 28

Selected characteristics			
Gender		Citizenship	
Male	24	United States	28
Female	4	Foreign nation	0
Race/ethnicity		Employer	
American Indian	0	Army	17
Asian	2	Navy	10
Blacı	0	Marine Corps	0
Hispanic	0	Air Force	1
White	26	Defense Agency	0
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Ceramic Engineering	12	5	2	5	0
Second	Materials Engineering	4	0	2	2	0
	Other fields	11	5	0	6	0
	Nondegreed	0	0	0	0	0
	Unknown	1	1	0	0	0

OCCUPATION: 00892 – CERAMIC ENGINEERING
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD employment

Average years since degree

Year of inventory
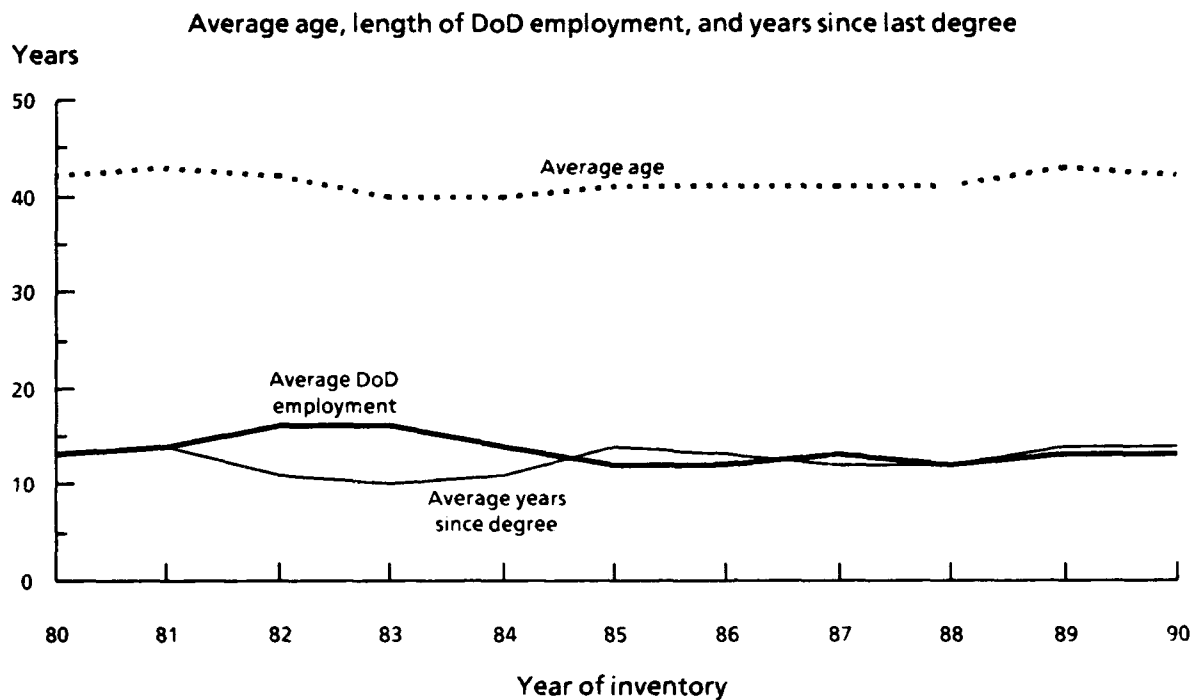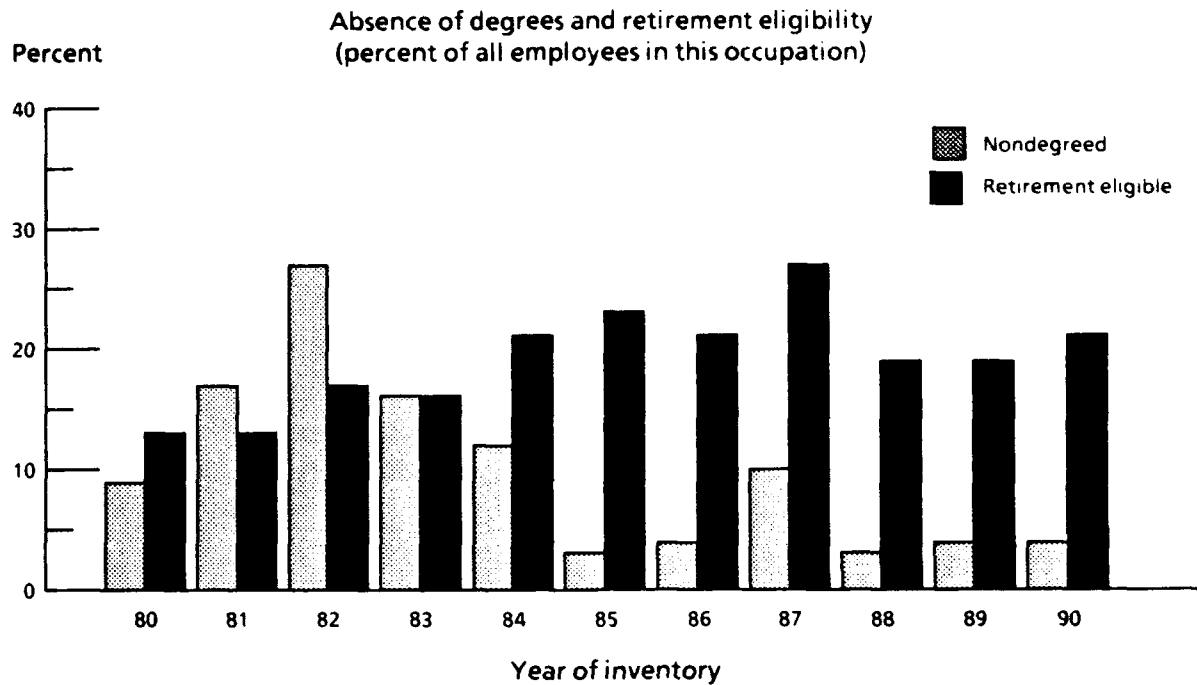
OCCUPATION: 00893 – CHEMICAL ENGINEERING

1990 Employee Profile
DoD total employed: 951

Selected characteristics

Gender		Citizenship	
Male	781	United States	951
Female	170	Foreign nation	0
Race/ethnicity		Employer	
American Indian	3	Army	459
Asian	94	Navy	402
Black	27	Marine Corps	0
Hispanic	39	Air Force	76
White	788	Defense Agency	14
Other	0	Unknown	0

Academic degree backgrounds

Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Chemical Engineering	751	617	109	24	1
Second	Chemistry, General	43	30	10	3	0
	Other fields	132	71	50	11	0
	Nondegreed	25	0	0	0	25
	Unknown	0	0	0	0	0

OCCUPATION: 00893 – CHEMICAL ENGINEERING
(continued)

1980 through 1990 trends

Percent

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Year of inventory

Years

Average age, length of DoD employment, and years since last degree

Year of inventory
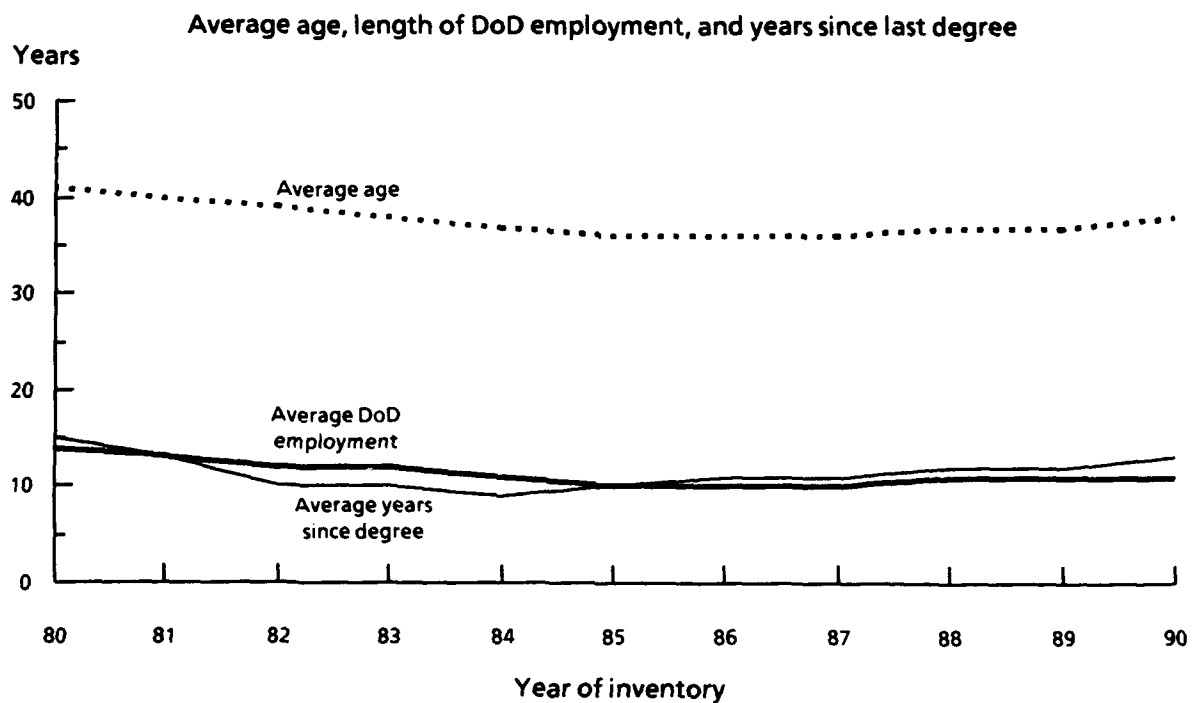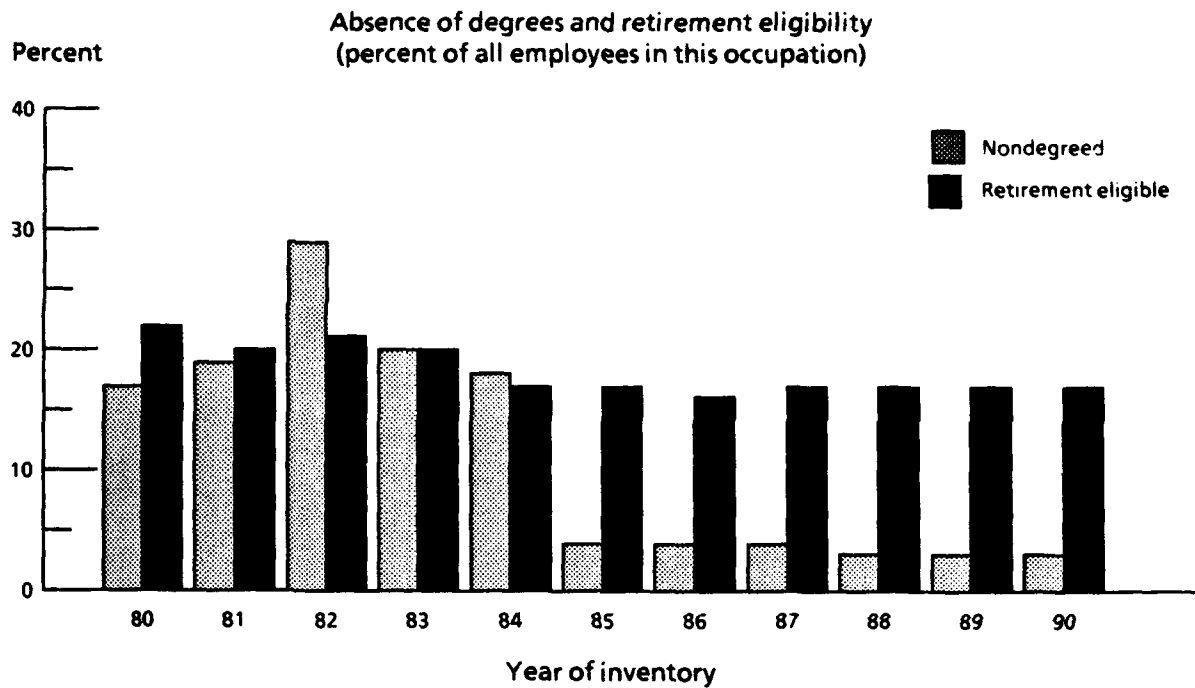
OCCUPATION: 00894 – WELDING ENGINEERING

1990 Employee Profile
DoD total employed: 86

Selected characteristics

Gender		Citizenship	
Male	81	United States	86
Female	5	Foreign nation	0
Race/ethnicity		Employer	
American Indian	1	Army	4
Asian	10	Navy	78
Black	2	Marine Corps	0
Hispanic	0	Air Force	4
White	73	Defense Agency	0
Other	0	Unknown	0

Academic degree backgrounds

Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Metallurgical Enginering	26	20	6	0	0
Second	Mechanical Engineering	13	11	2	0	0
Third	Metallurgy	8	7	1	0	0
	Other fields	36	30	6	0	0
	Nondegreed	3	0	0	0	3
	Unknown	0	0	0	0	0

OCCUPATION: 00894 – WELDING ENGINEERING
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Nondegreed

Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD
employment

Average years
since degree

Year of inventory
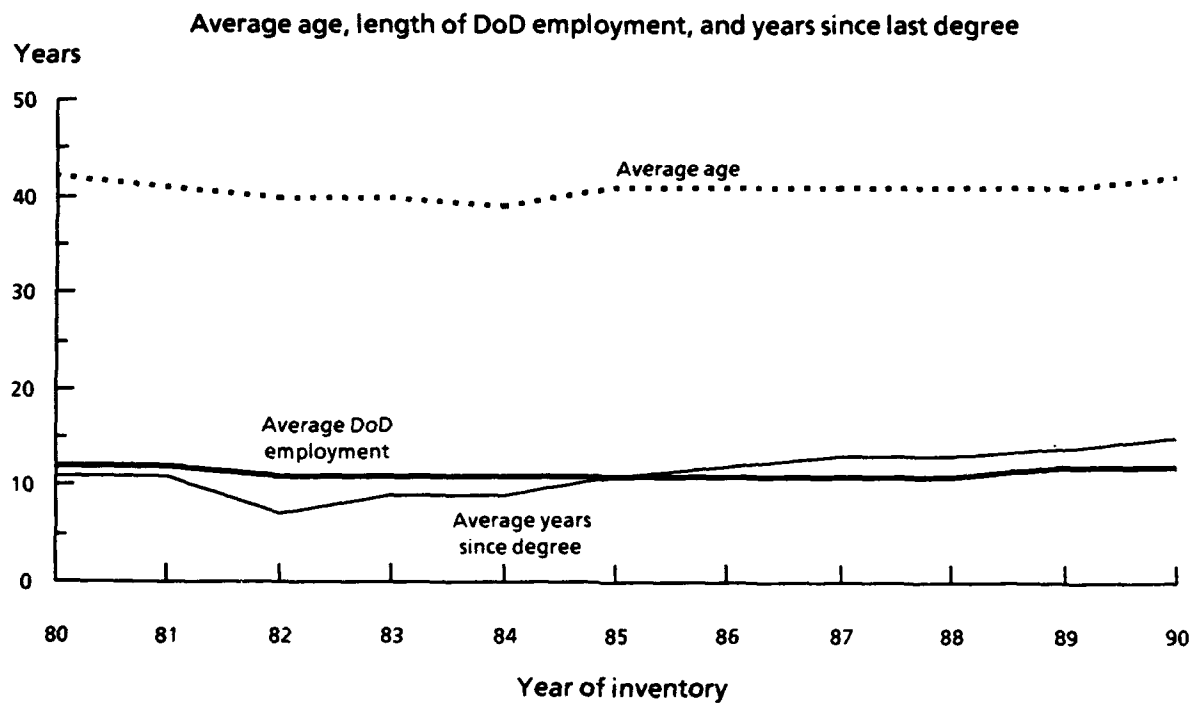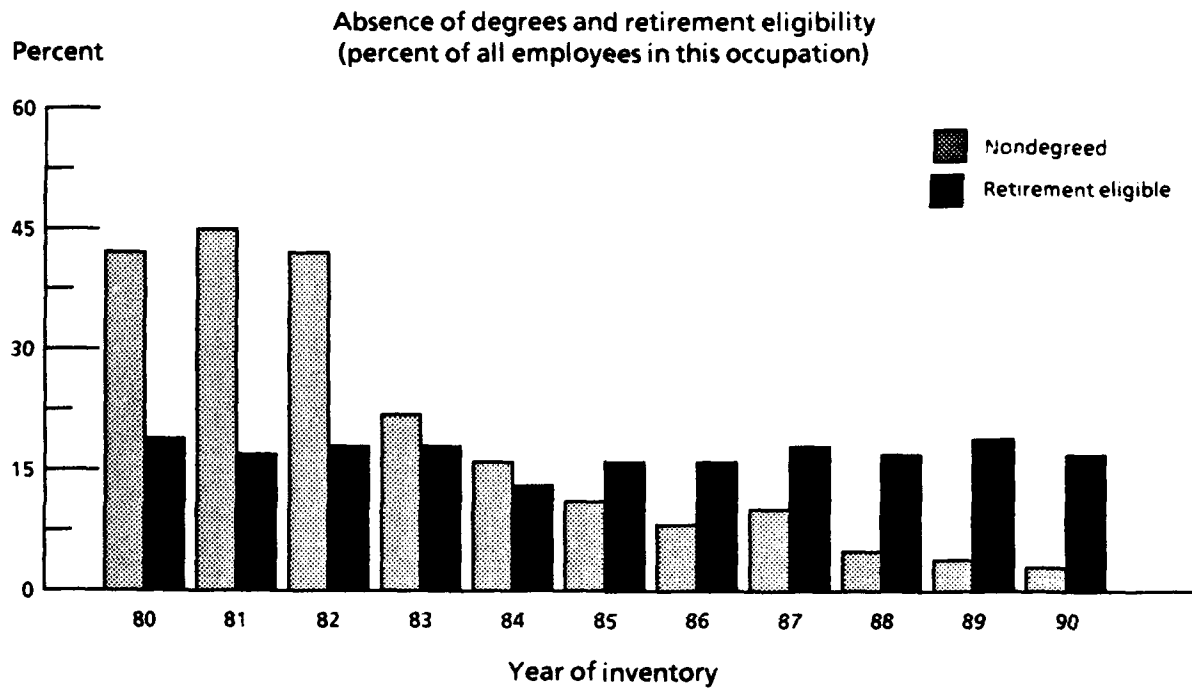
OCCUPATION: 00896 – INDUSTRIAL ENGINEERING

1990 Employee Profile
DoD total employed: 2,967

Selected characteristics			
Gender		**Citizenship**	
Male	2,533	United States	2,967
Female	434	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	17	Army	788
Asian	177	Navy	1,087
Black	134	Marine Corps	10
Hispanic	126	Air Force	630
White	2,513	Defense Agency	452
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Industrial and Mgmt. Eng.	1,572	1,344	223	5	0
Second	Mechanical Enginering	313	283	28	2	0
Third	Engineering, General	165	148	17	0	0
Fourth	Business Mgmt. and Admin.	153	31	121	1	0
	Other fields	673	525	143	5	0
	Nondegreed	86	0	0	0	86
	Unknown	5	5	0	0	0

OCCUPATION: 00896 – INDUSTRIAL ENGINEERING
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD employment

Average years since degree

Year of inventory
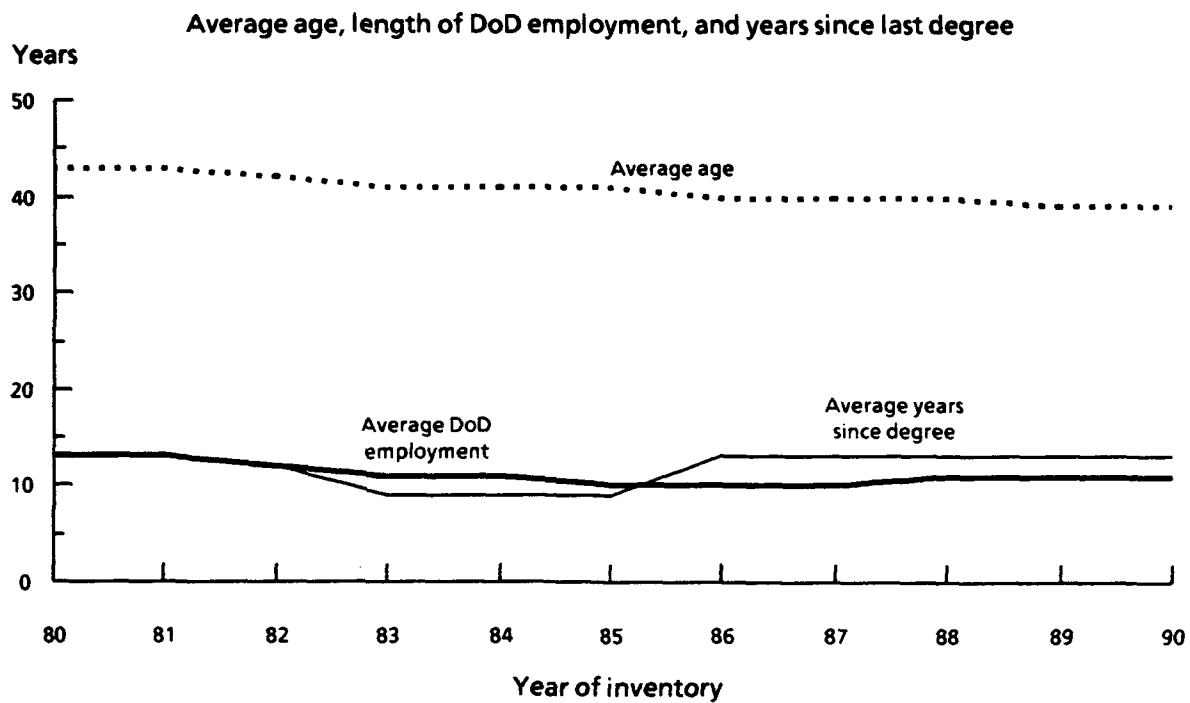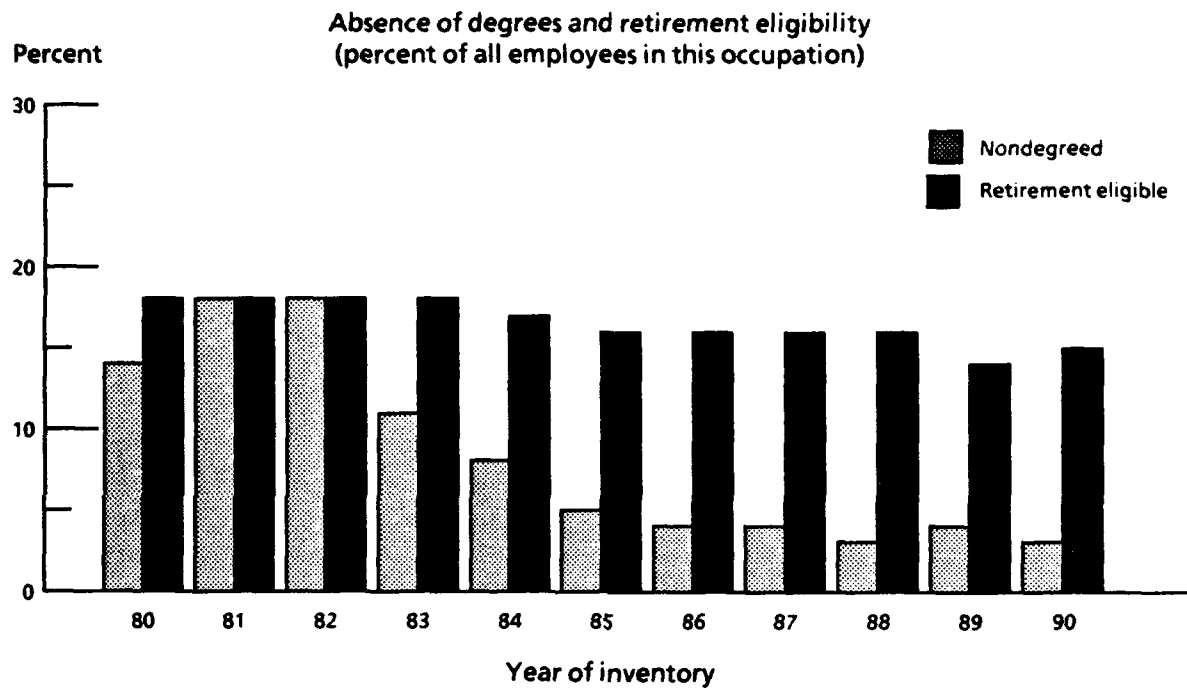
OCCUPATION: 01221 – PATENT ADVISOR

1990 Employee Profile
DoD total employed: 20

Selected characteristics			
Gender		Citizenship	
Male	20	United States	20
Female	0	Foreign nation	0
Race/ethnicity		Employer	
American Indian	0	Army	12
Asian	0	Navy	1
Black	1	Marine Corps	0
Hispanic	0	Air Force	7
White	19	Defense Agency	0
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Law, General	9	6	1	2	0
Second	Electrical, Electronics, and Communications Eng.	3	3	0	0	0
	Other fields	6	5	1	0	0
	Nondegreed	2	0	0	0	2
	Unknown	0	0	0	0	0

OCCUPATION: 01221 – PATENT ADVISOR
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD employment

Average years since degree

Year of inventory
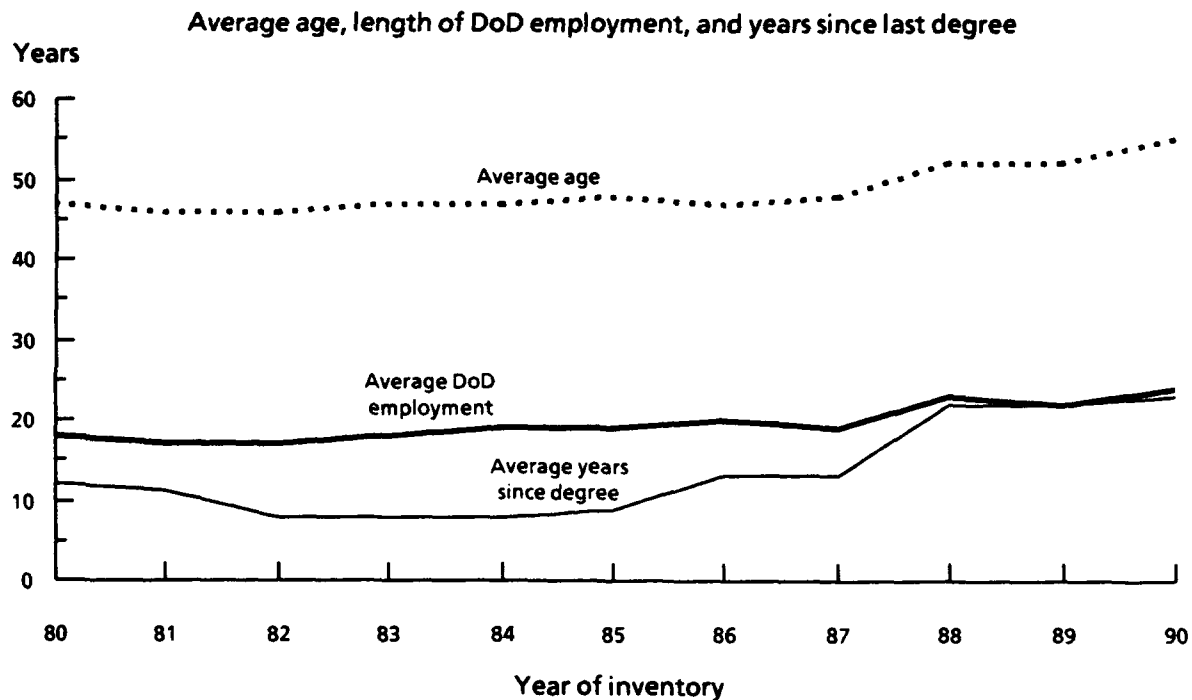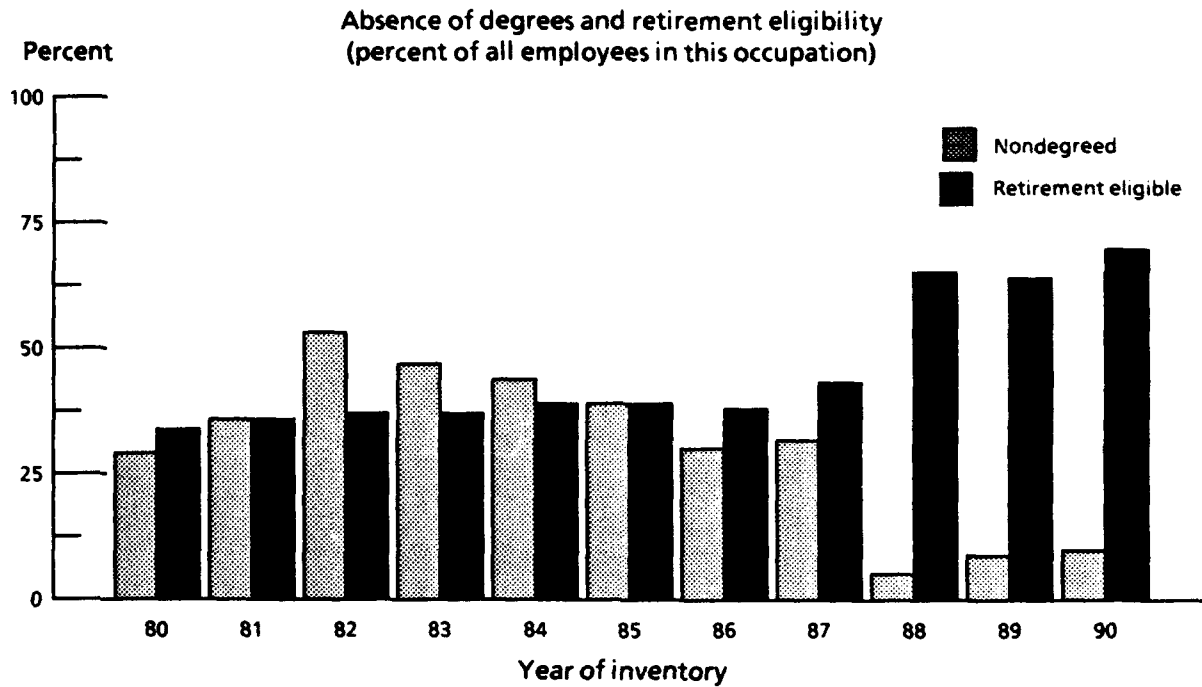
OCCUPATION: 01301 – GENERAL PHYSICAL SCIENCE

1990 Employee Profile
DoD total employed: 2,132

Selected characteristics			
Gender		**Citizenship**	
Male	1,833	United States	2,131
Female	299	Foreign nation	1
Race/ethnicity		**Employer**	
American Indian	6	Army	972
Asian	39	Navy	474
Black	97	Marine Corps	2
Hispanic	38	Air Force	203
White	1,952	Defense Agency	481
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			**Number of employees, by degree level**			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Physics, General	205	66	55	84	0
Second	Geology	152	93	47	12	0
Third	Geography	127	90	31	6	0
Fourth	Chemistry, General	112	68	15	29	0
	Other fields	1,416	626	501	289	0
	Nondegreed	118	0	0	0	118
	Unknown	2	2	0	0	0

OCCUPATION: 01301 – GENERAL PHYSICAL SCIENCE
(continued)

1980 through 1990 trends

**Absence of degrees and retirement eligibility
(percent of all employees in this occupation)**

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD
employment

Average years
since degree

Year of inventory
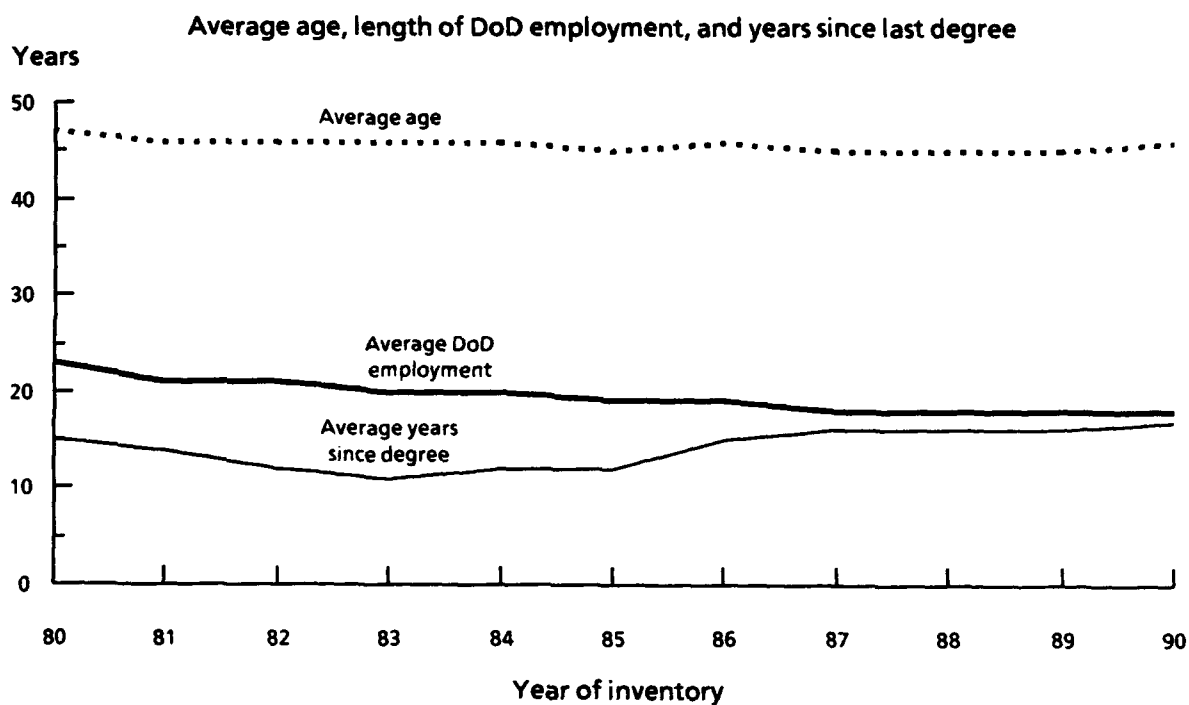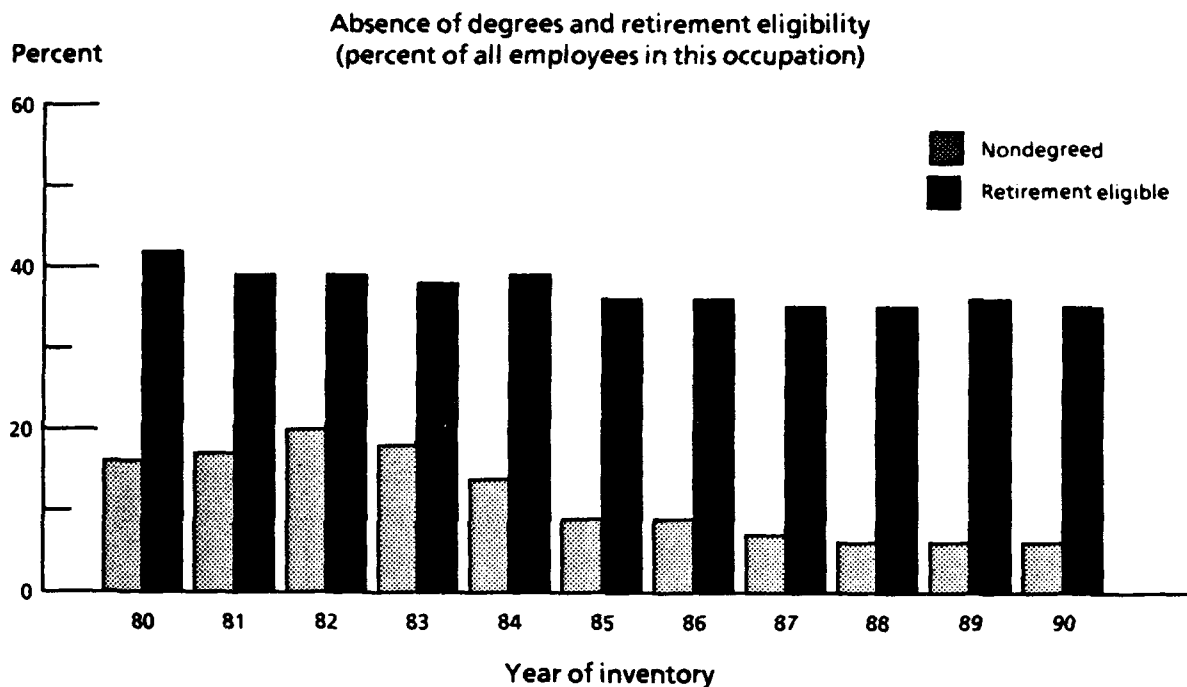
OCCUPATION: 01306 – HEALTH PHYSICS

1990 Employee Profile
DoD total employed: 286

Selected characteristics			
Gender		**Citizenship**	
Male	227	United States	286
Female	59	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	1	Army	55
Asian	35	Navy	220
Black	20	Marine Corps	1
Hispanic	2	Air Force	3
White	228	Defense Agency	7
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			**Number of employees, by degree level**			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Biology, General	43	40	3	0	0
Second	Physics, General	28	22	6	0	0
Third	Chemistry, General	27	23	3	1	0
Fourth	Physical Sciences, General	11	10	1	0	0
	Other fields	122	83	36	3	0
	Nondegreed	55	0	0	0	55
	Unknown	0	0	0	0	0

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Nondegreed

Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD
employment

Average years
since degree

Year of inventory

OCCUPATION: 01310 – PHYSICS

1990 Employee Profile
DoD total employed: 2,822

Selected characteristics

Gender		Citizenship	
Male	2,655	United States	2,813
Female	167	Foreign nation	9
Race/ethnicity		**Employer**	
American Indian	6	Army	619
Asian	116	Navy	1,805
Black	46	Marine Corps	0
Hispanic	43	Air Force	372
White	2,611	Defense Agency	26
Other	0	Unknown	0

Academic degree backgrounds

Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Physics, General	1,912	689	497	726	0
Second	Physical Sciences, General	129	53	36	40	0
Third	Other Physical Science	109	5	10	94	0
Fourth	Mathematics, General	60	37	11	12	0
Fifth	Electrical, Electronics, and Communications Eng.	58	13	22	23	0
	Other fields	522	92	156	274	0
	Nondegreed	31	0	0	0	31
	Unknown	1	0	1	0	0

OCCUPATION: 01310 – PHYSICS
(continued)

1980 through 1990 trends

**Absence of degrees and retirement eligibility
(percent of all employees in this occupation)**

Percent

Legend:
- ⬛ (shaded) ' ondegreed
- ■ Retirement eligible

Year of inventory

Ave·age age, length of DoD employment, and years since last degree

Years

Average age

Average DoD employment

Average years since degree

Year of inventory
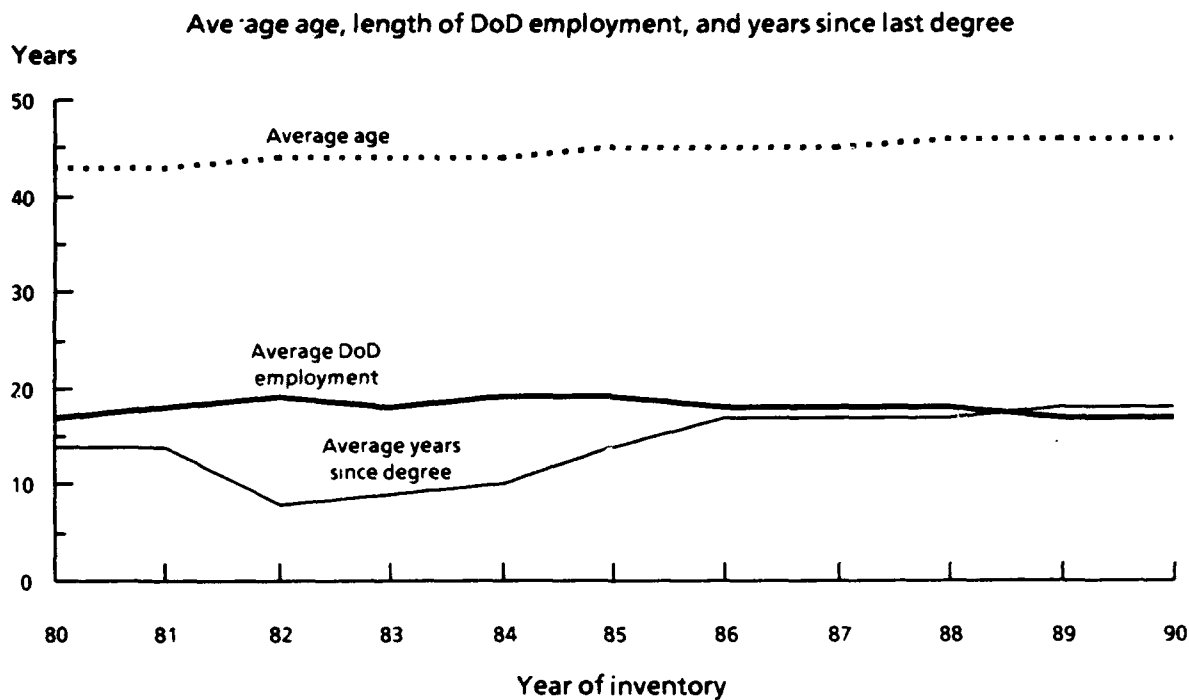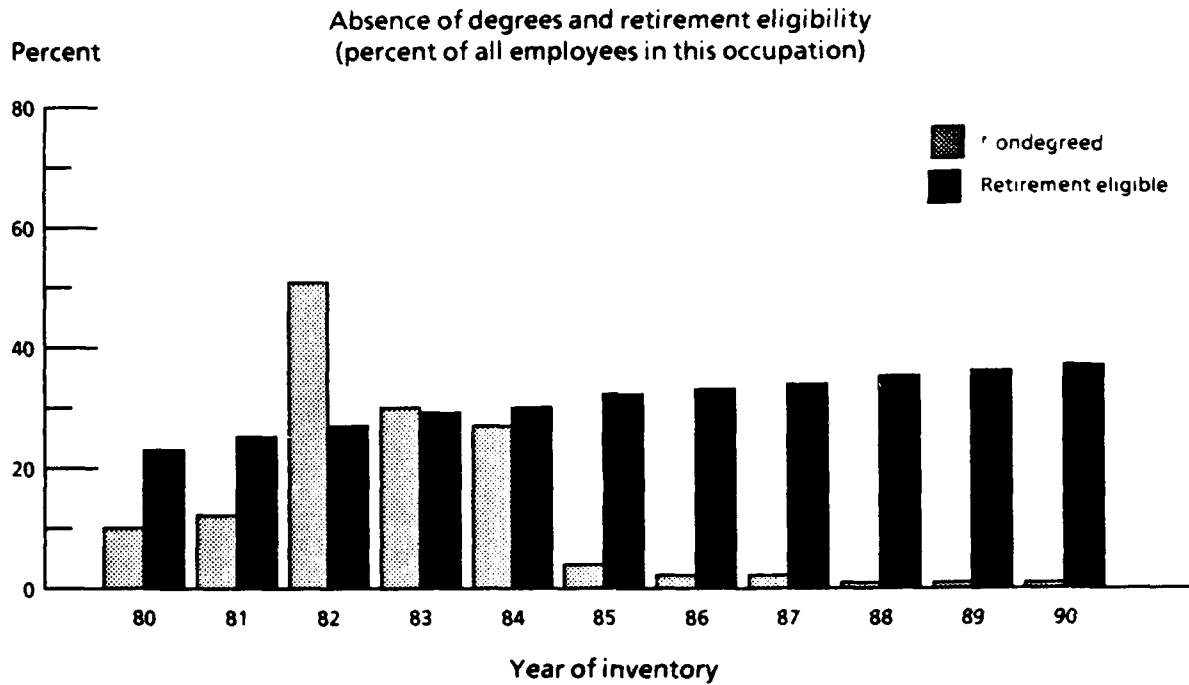
OCCUPATION: 01313 – GEOPHYSICS

1990 Employee Profile
DoD total employed: 152

Selected characteristics

Gender		Citizenship	
Male	137	United States	152
Female	15	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	0	Army	22
Asian	3	Navy	104
Black	0	Marine Corps	0
Hispanic	3	Air Force	24
White	146	Defense Agency	2
Other	0	Unknown	0

Academic degree backgrounds

Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Geophysics	39	3	23	13	0
Second	Geology	39	29	7	3	0
Third	Paleontology	8	4	3	1	0
	Other fields	64	48	6	10	0
	Nondegreed	2	0	0	0	2
	Unknown	0	0	0	0	0

OCCUPATION: 01313 – GEOPHYSICS
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD employment

Average years since degree

Year of inventory
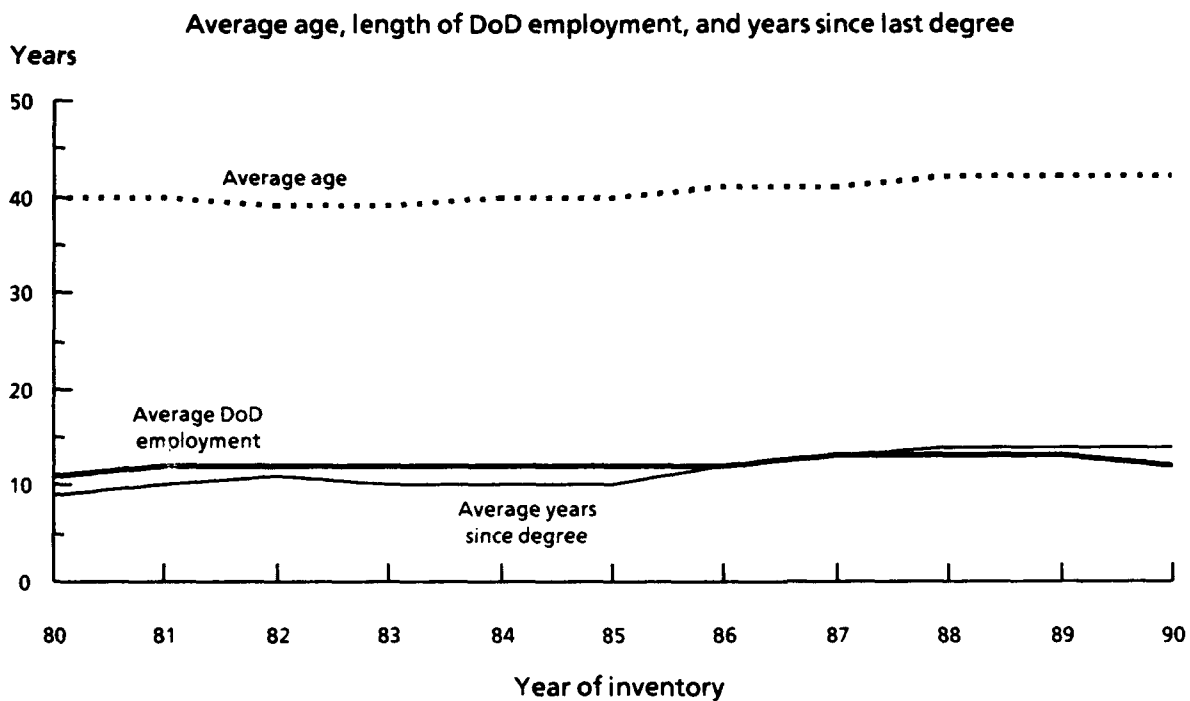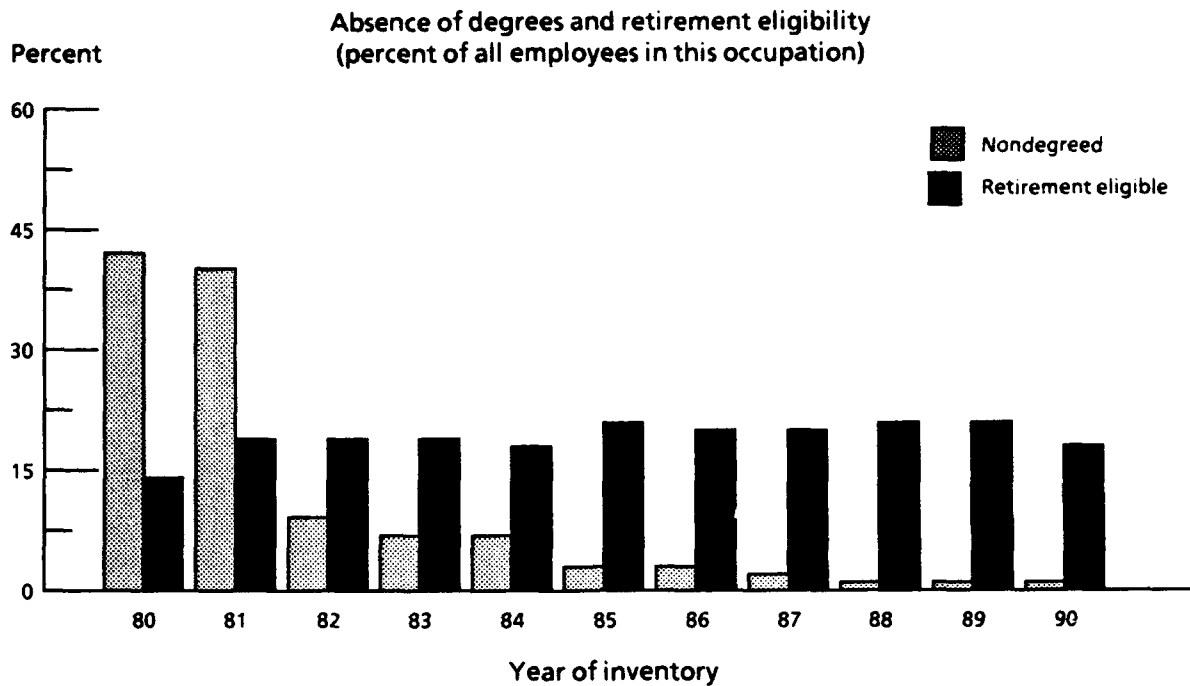
OCCUPATION: 01315 – HYDROLOGY

1990 Employee Profile
DoD total employed: 68

Selected characteristics			
Gender		**Citizenship**	
Male	62	United States	68
Female	6	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	0	Army	52
Asian	0	Navy	4
Black	2	Marine Corps	0
Hispanic	0	Air Force	11
White	66	Defense Agency	1
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Geology	22	11	10	1	0
Second	Physical Science, General	4	2	2	0	0
Third	Mathematics, General	4	4	0	0	0
Fourth	Geography	4	2	2	0	0
Fifth	Civil Engineering	4	2	2	0	0
	Other fields	26	7	16	3	0
	Nondegreed	4	0	0	0	4
	Unknown	0	0	0	0	0

OCCUPATION: 01315 – HYDROLOGY
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Nondegreed

Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD
employment

Average years
since degree

Year of inventory
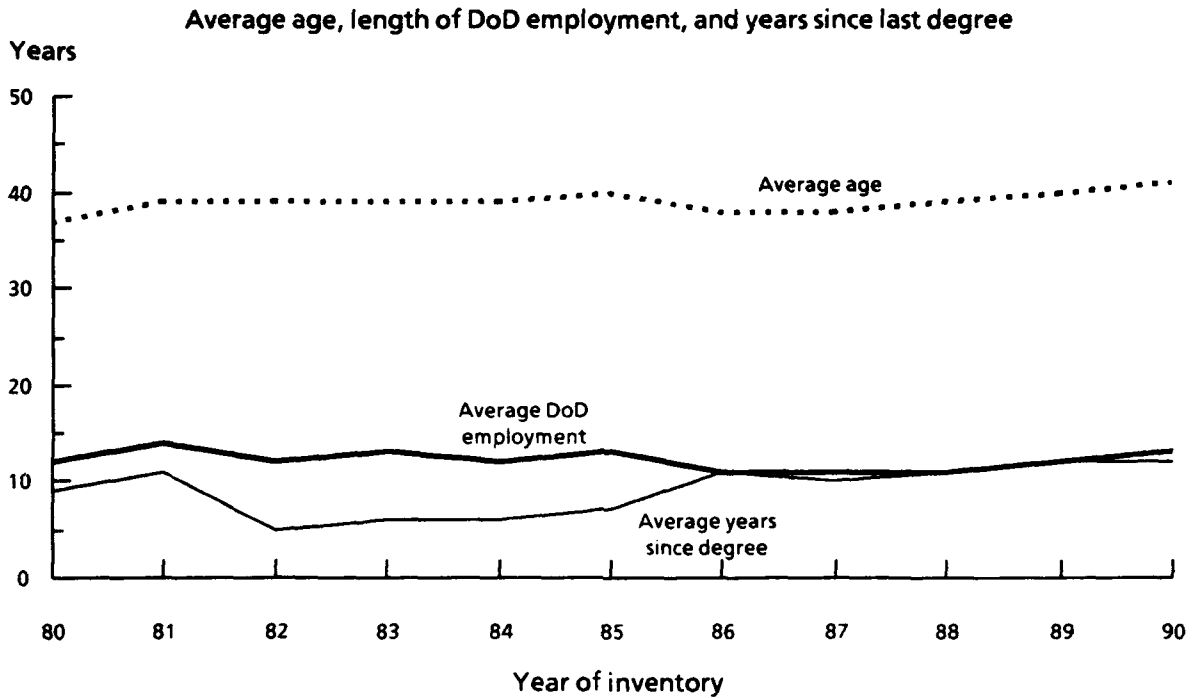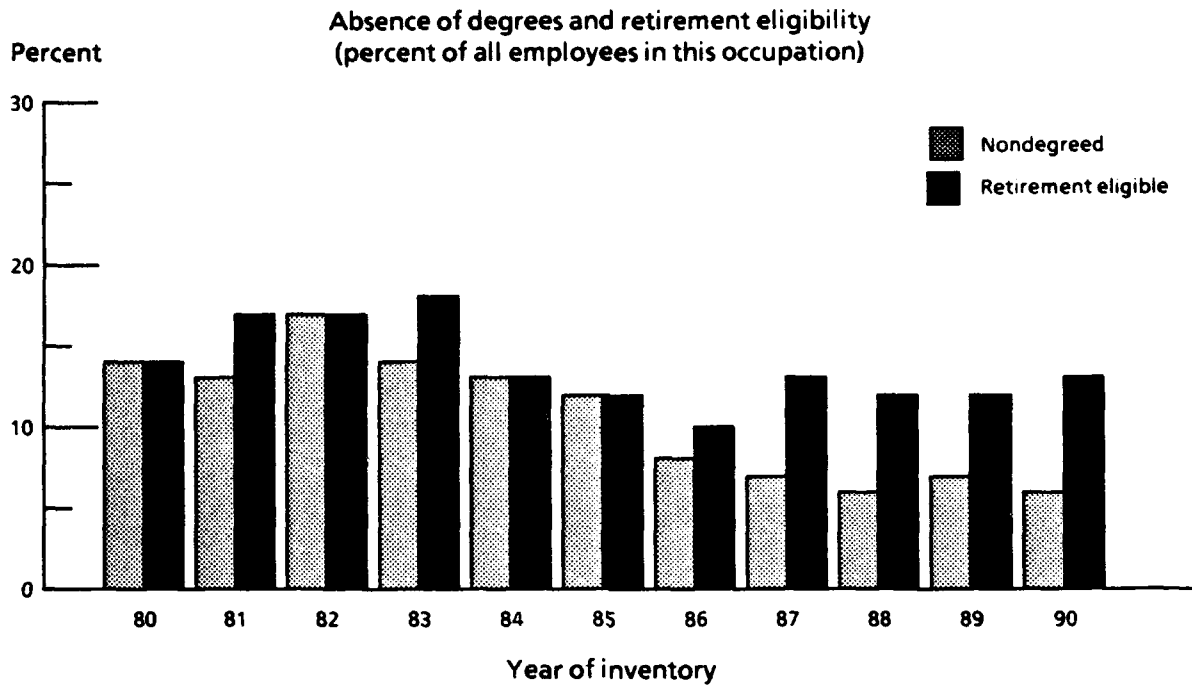
OCCUPATION: 01320 – CHEMISTRY

1990 Employee Profile
DoD total employed: 2,018

Selected characteristics			
Gender		Citizenship	
Male	1,572	United States	2,013
Female	446	Foreign nation	5
Race/ethnicity		Employer	
American Indian	2	Army	870
Asian	203	Navy	767
Black	145	Marine Corps	3
Hispanic	55	Air Force	309
White	1,613	Defense Agency	69
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Chemistry, General	1,049	730	1,103	185	0
Second	Physical Chemistry	183	26	22	135	0
Third	Biochemistry	160	50	36	74	0
Fourth	Organic Chemistry	141	17	39	85	0
	Other fields	422	178	107	137	0
	Nondegreed	63	0	0	0	63
	Unknown	0	0	0	0	0

OCCUPATION: 01320 – CHEMISTRY
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD employment

Average years since degree

Year of inventory
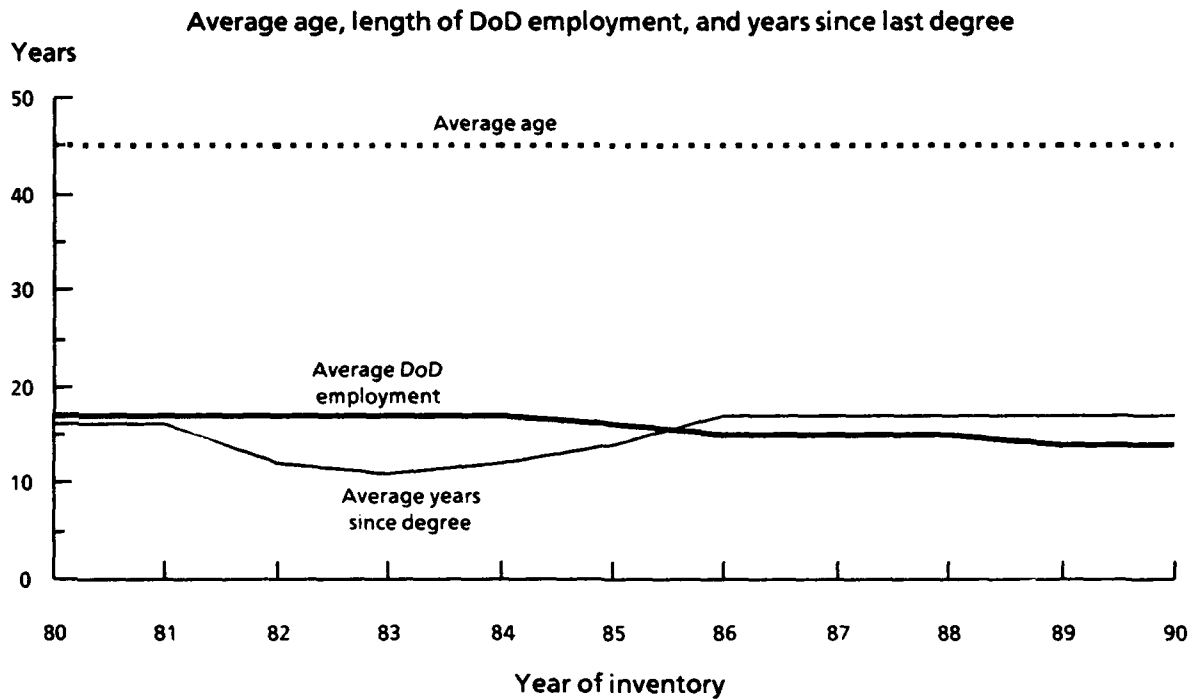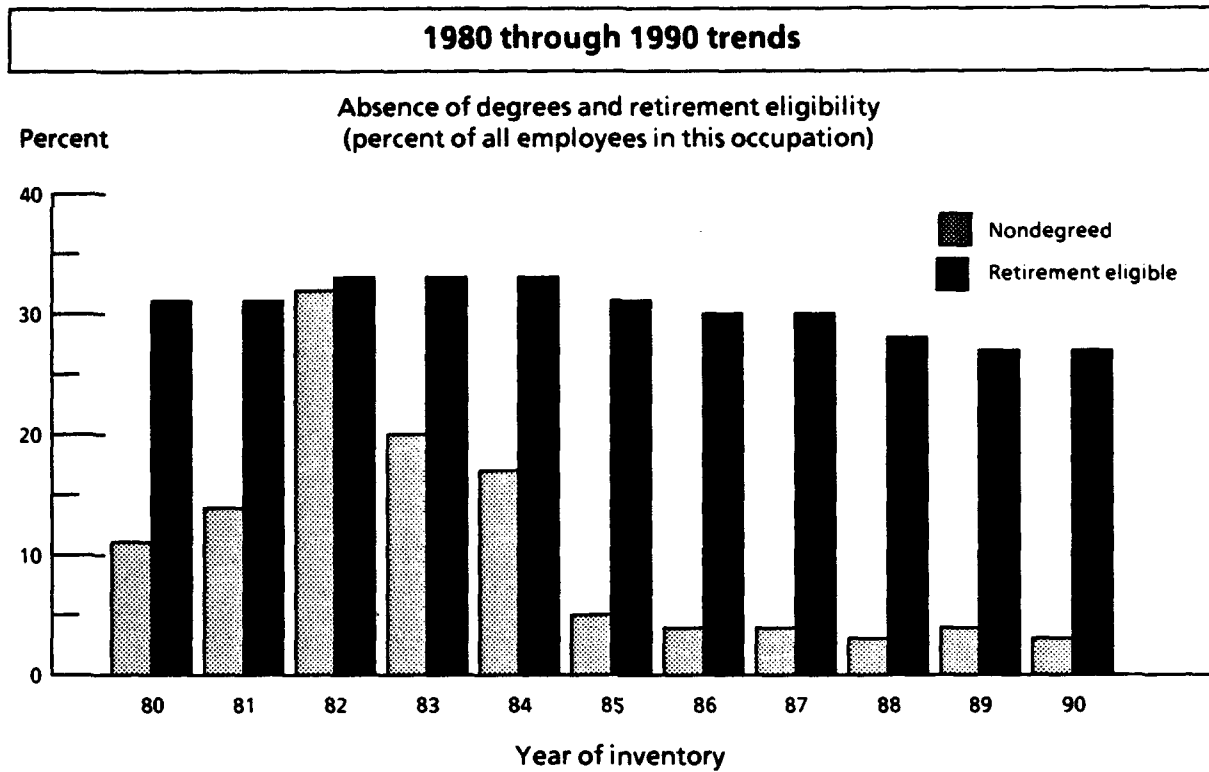
1990 Employee Profile
DoD total employed: 178

Selected characteristics			
Gender		**Citizenship**	
Male	171	United States	178
Female	7	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	0	Army	58
Asian	23	Navy	100
Black	2	Marine Corps	0
Hispanic	5	Air Force	18
White	148	Defense Agency	2
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Metallurgical Engineering	69	36	18	15	0
Second	Metallurgy	54	20	13	21	0
Third	Gen. Liberal Arts and Science	4	4	0	0	0
	Other fields	42	14	10	18	0
	Nondegreed	9	0	0	0	9
	Unknown	0	0	0	0	0

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Nondegreed

Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD employment

Average years since degree

Year of inventory
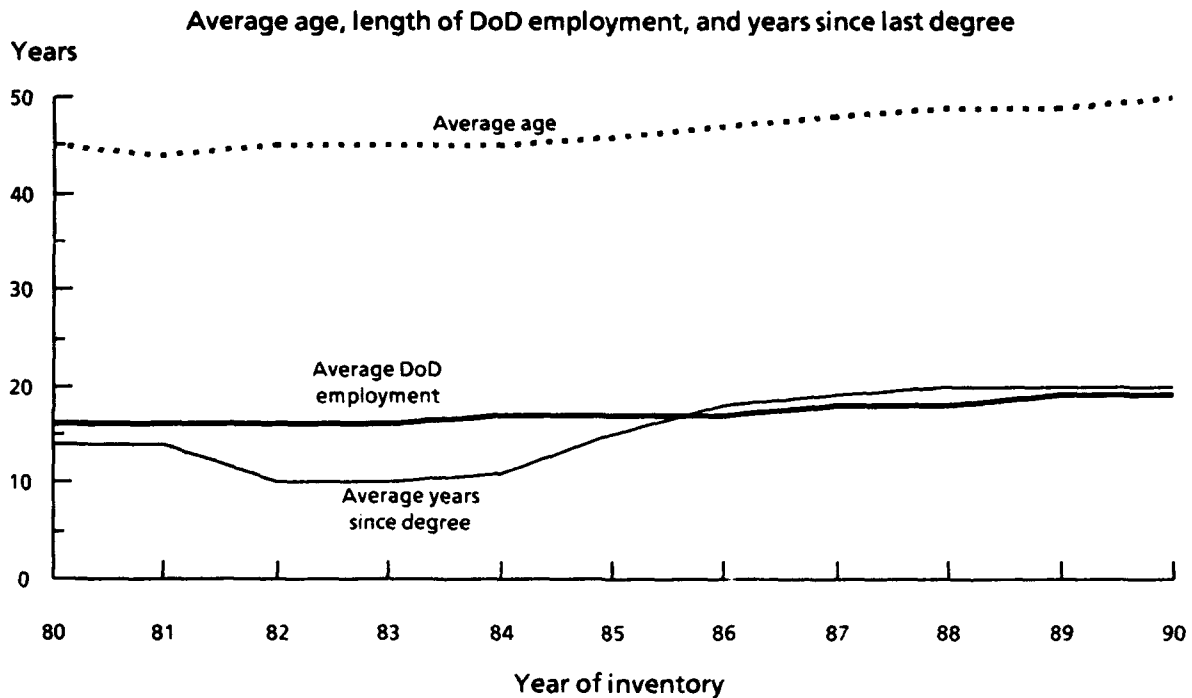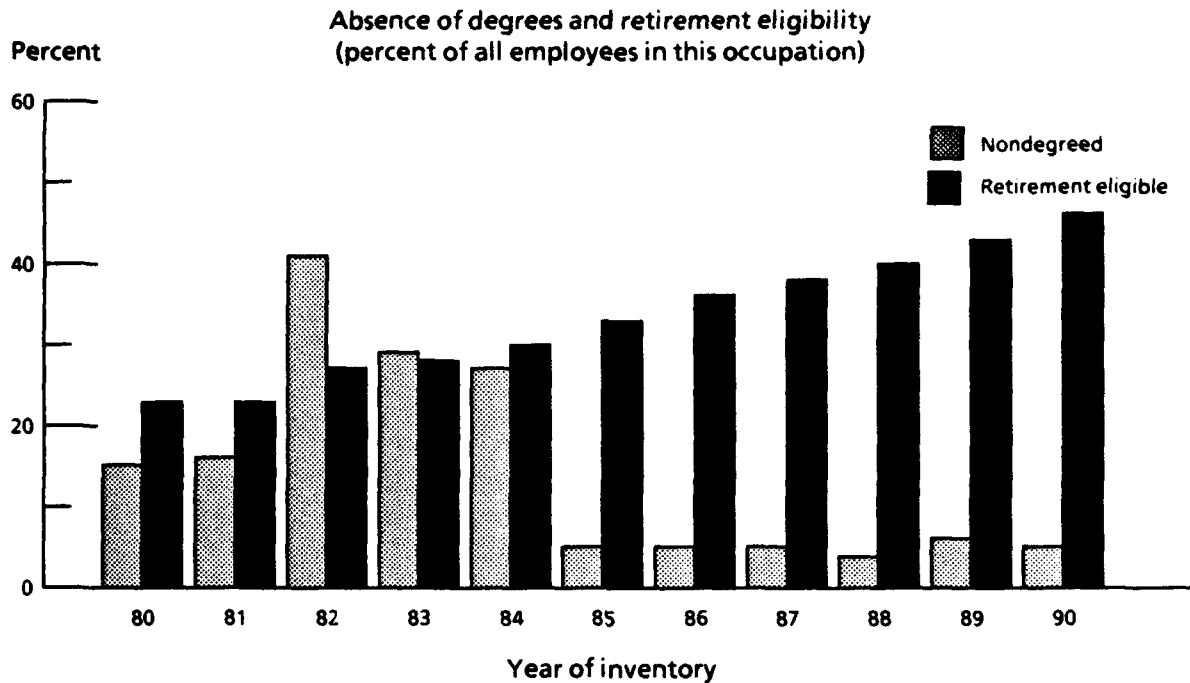
OCCUPATION: 01330 – ASTRONOMY AND SPACE SCIENCE

1990 Employee Profile
DoD total employed: 140

Selected characteristics

Gender		Citizenship	
Male	127	United States	140
Female	13	Foreign nation	0
Race/ethnicity		Employer	
American Indian	0	Army	0
Asian	3	Navy	132
Black	2	Marine Corps	0
Hispanic	0	Air Force	8
White	135	Defense Agency	0
Other	0	Unknown	0

Academic degree backgrounds

	Academic major		Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Astronomy	52	13	11	28	0
Second	Astrophysics	25	0	0	25	0
Third	General Liberal Arts	4	2	0	2	0
	Other fields	50	15	12	23	0
	Nondegreed	9	0	0	0	9
	Unknown	0	0	0	0	0

OCCUPATION: 01330 – ASTRONOMY AND SPACE SCIENCE
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD employment

Average years since degree

Year of inventory
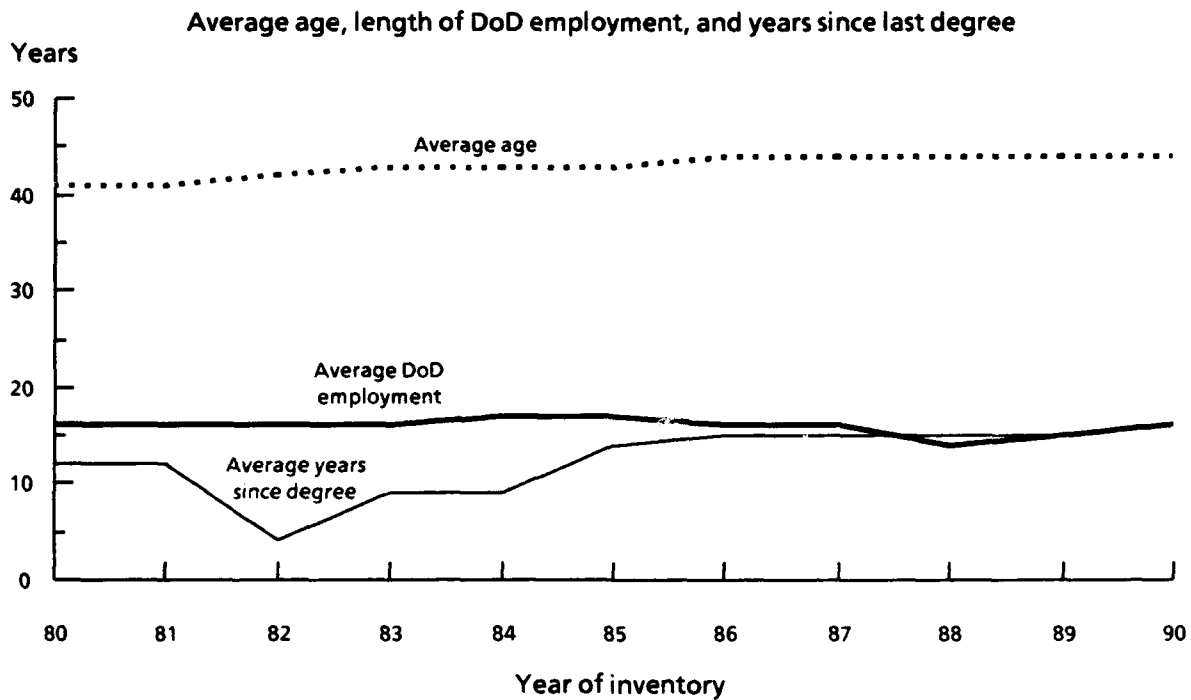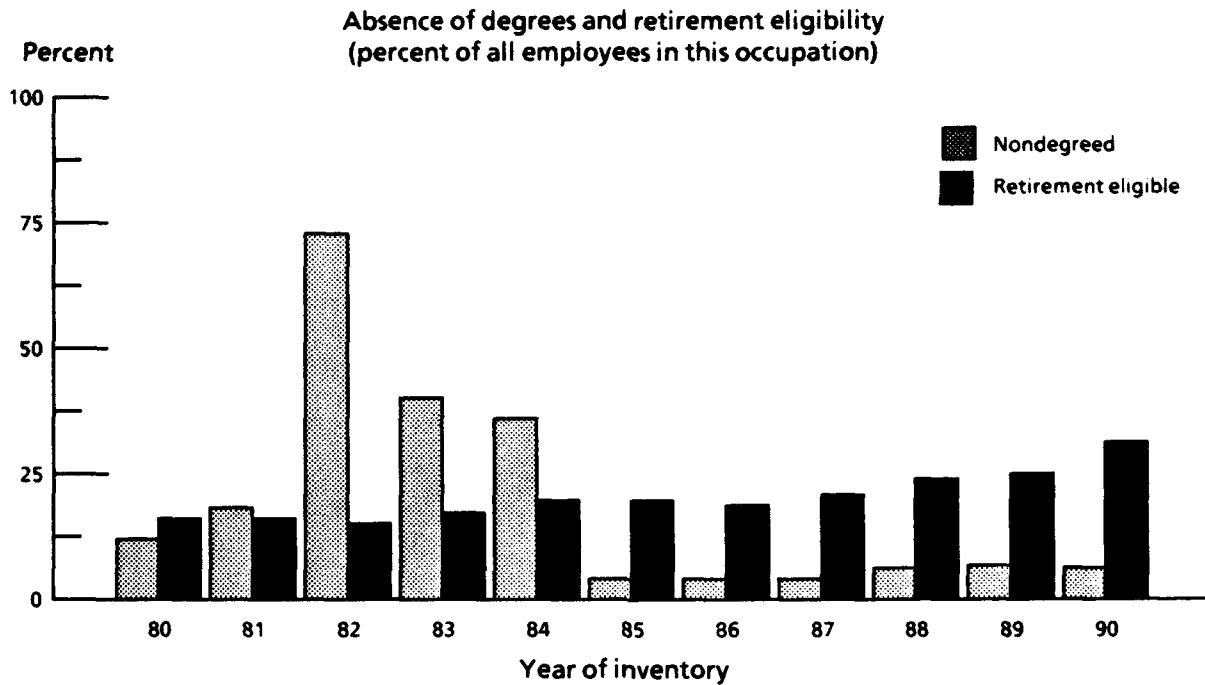
OCCUPATION: 01340 – METEOROLOGY

1990 Employee Profile
DoD total employed: 286

Selected characteristics			
Gender		Citizenship	
Male	267	United States	286
Female	19	Foreign nation	0
Race/ethnicity		Employer	
American Indian	0	Army	90
Asian	13	Navy	82
Black	2	Marine Corps	0
Hispanic	3	Air Force	114
White	268	Defense Agency	0
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Atmospheric Sciences and Meteorology	209	64	196	26	0
	Other fields	68	26	36	6	0
	Nondegreed	8	0	0	0	8
	Unknown	1	0	1	0	0

OCCUPATION: 01340 – METEOROLOGY
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Year of inventory

1990 Employee Profile
DoD total employed: 337

Selected characteristics			
Gender		Citizenship	
Male	291	United States	337
Female	46	Foreign nation	0
Race/ethnicity		Employer	
American Indian	1	Army	281
Asian	2	Navy	20
Black	4	Marine Corps	2
Hispanic	2	Air Force	8
White	328	Defense Agency	26
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Geology	281	206	61	14	0
	Other fields	49	32	12	5	0
	Nondegreed	7	0	0	0	7
	Unknown	0	0	0	0	0

OCCUPATION: 01350 – GEOLOGY
(continued)

1980 through 1990 trends

Percent

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD employment

Average years since degree

Year of inventory

C-152
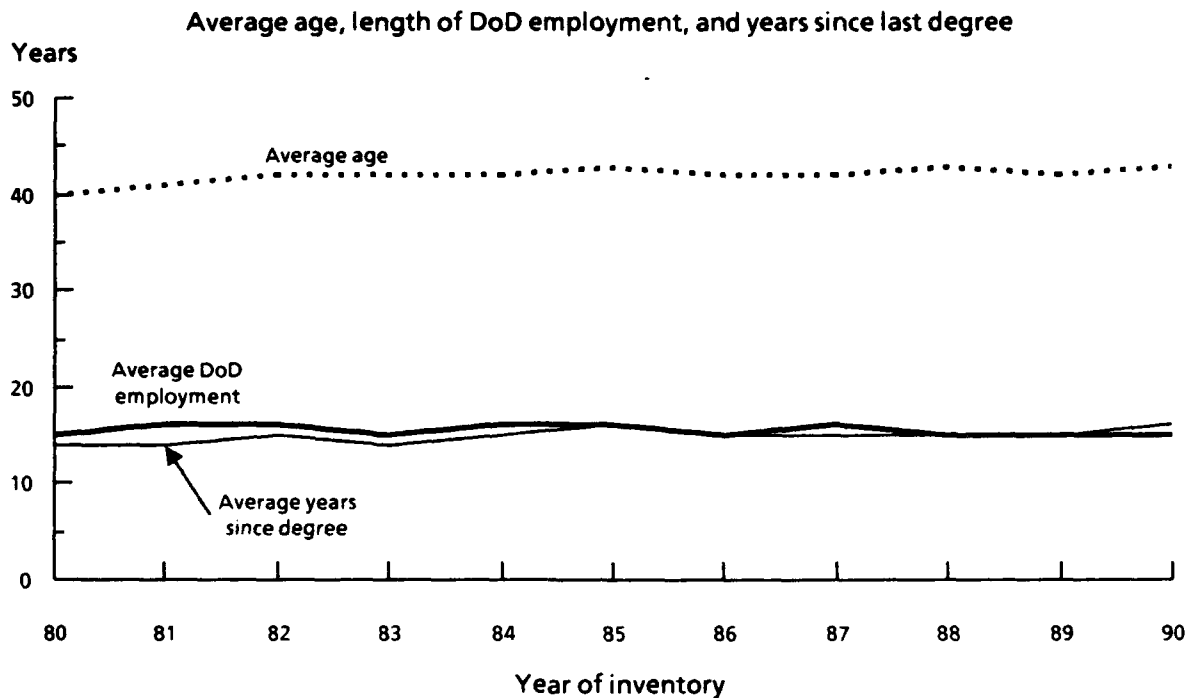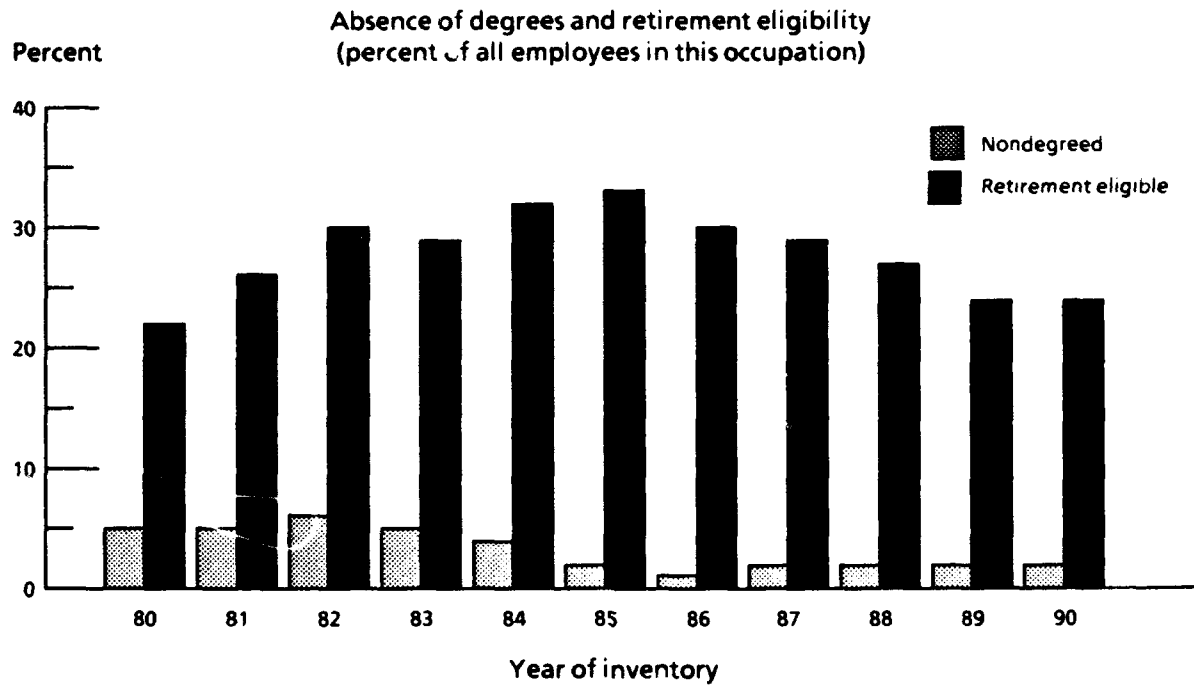
OCCUPATION: 01360 – OCEANOGRAPHY

1990 Employee Profile
DoD total employed: 388

Selected characteristics

Gender		Citizenship	
Male	326	United States	388
Female	62	Foreign nation	0
Race/ethnicity		Employer	
American Indian	2	Army	41
Asian	9	Navy	347
Black	3	Marine Corps	0
Hispanic	3	Air Force	0
White	371	Defense Agency	0
Other	0	Unknown	0

Academic degree backgrounds

Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Oceanograhy	158	35	73	50	0
Second	Geology	55	36	14	5	0
Third	Biology, General	15	8	3	4	0
	Other fields	149	3	42	34	0
	Nondegreed	11	0	0	0	11
	Unknown	0	0	0	0	0

OCCUPATION: 01360 – OCEANOGRAPHY
(continued)

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Nondegreed
Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD
employment

Average years
since degree

Year of inventory
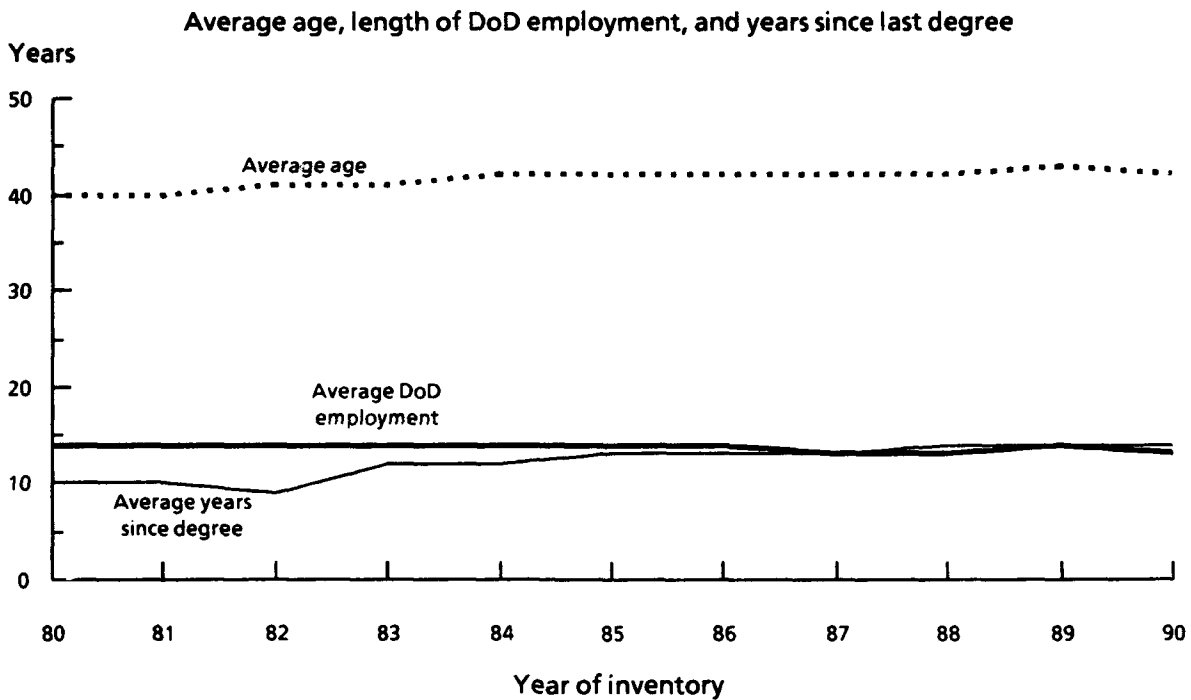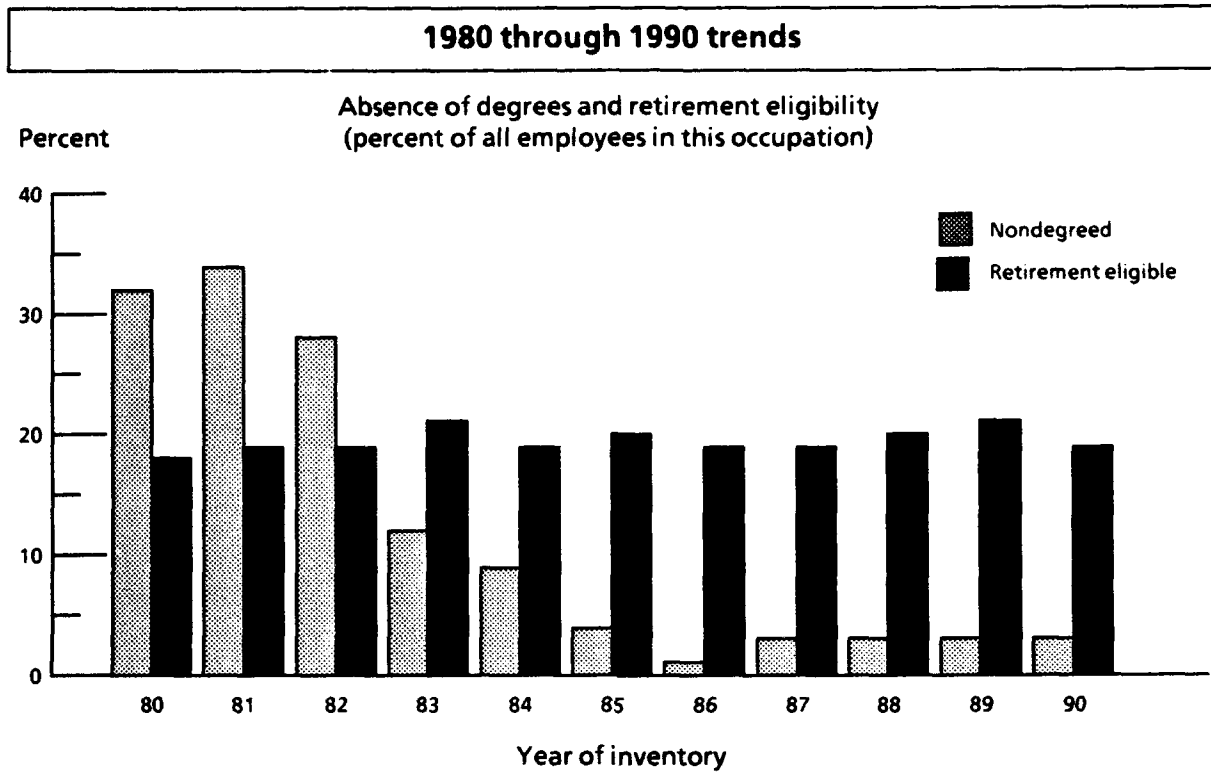
OCCUPATION: 01370 – CARTOGRAPHY

1990 Employee Profile
DoD total employed: 3,370

Selected characteristics			
Gender		**Citizenship**	
Male	2,685	United States	3,370
Female	685	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	9	Army	31
Asian	20	Navy	7
Black	276	Marine Corps	0
Hispanic	95	Air Force	6
White	2,970	Defense Agency	3,326
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Geography	1,109	970	137	2	0
Second	Geology	508	438	70	0	0
Third	Mathematics, General	244	233	11	0	0
Fourth	Computer and Info. Sciences	104	92	12	0	0
	Other fields	916	737	172	7	0
	Nondegreed	489	0	0	0	489
	Unknown	0	0	0	0	0

OCCUPATION: 01370 – CARTOGRAPHY
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Nondegreed
Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD
employment

Average years
since degree

Year of inventory
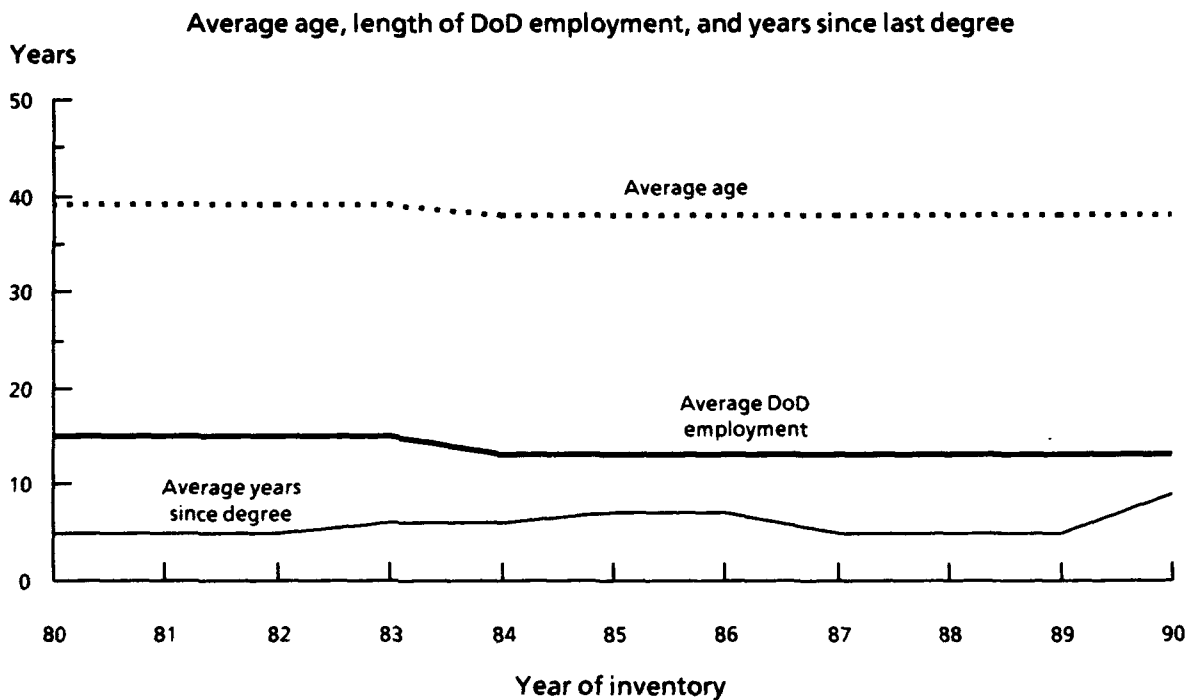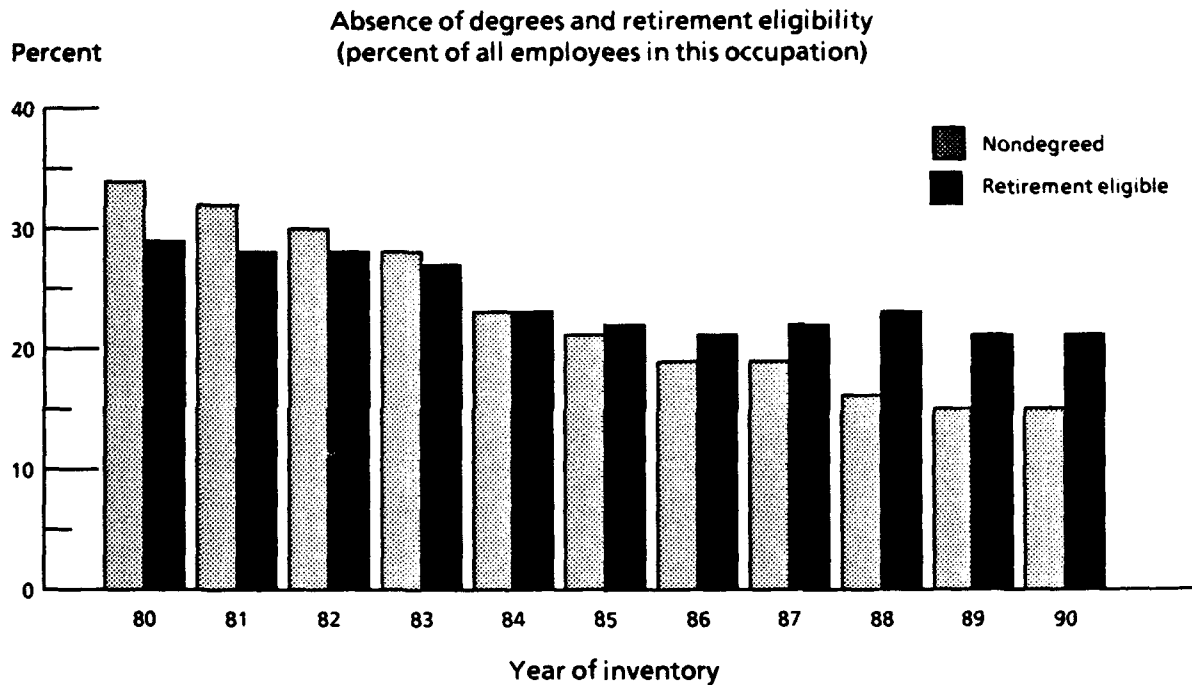
OCCUPATION: 01372 – GEODESY

1990 Employee Profile
DoD total employed: 203

Selected characteristics			
Gender		**Citizenship**	
Male	174	United States	203
Female	29	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	0	Army	7
Asian	1	Navy	4
Black	12	Marine Corps	0
Hispanic	2	Air Force	3
White	188	Defense Agency	189
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			**Number of employees, by degree level**			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Mathematics, General	44	25	19	0	0
Second	Geology	32	24	6	0	0
	Other fields	106	75	27	4	0
	Nondegreed	21	0	0	0	21
	Unknown	0	0	0	0	0

OCCUPATION: 01372 – GEODESY
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Year of inventory
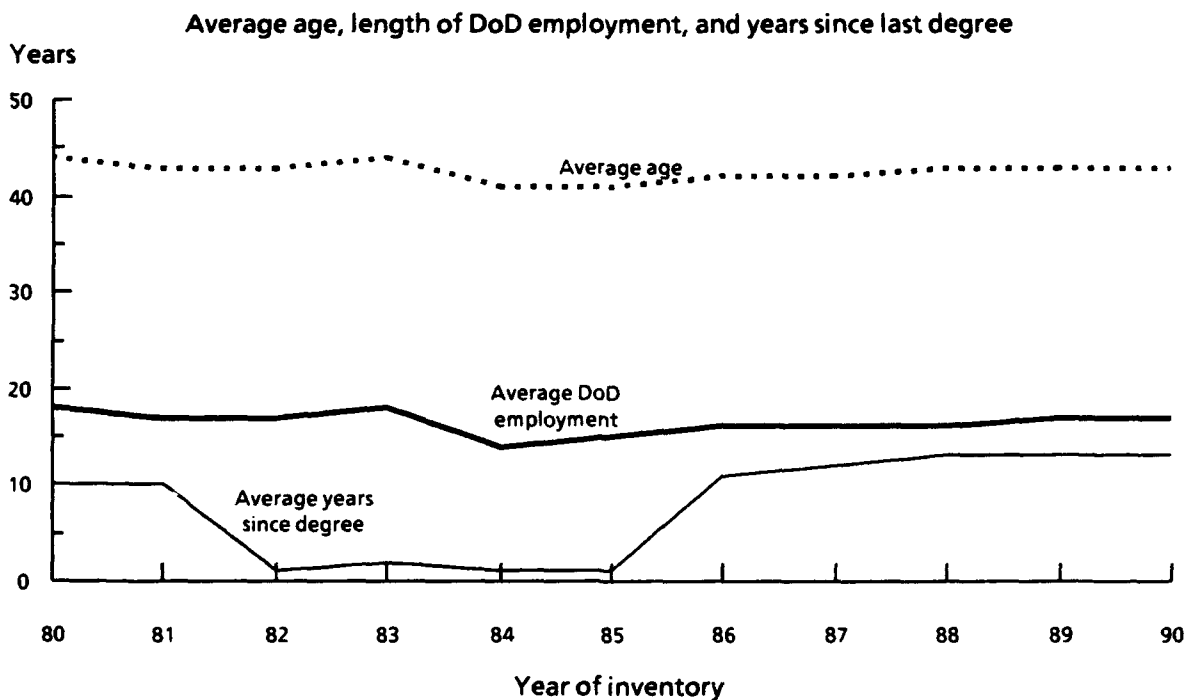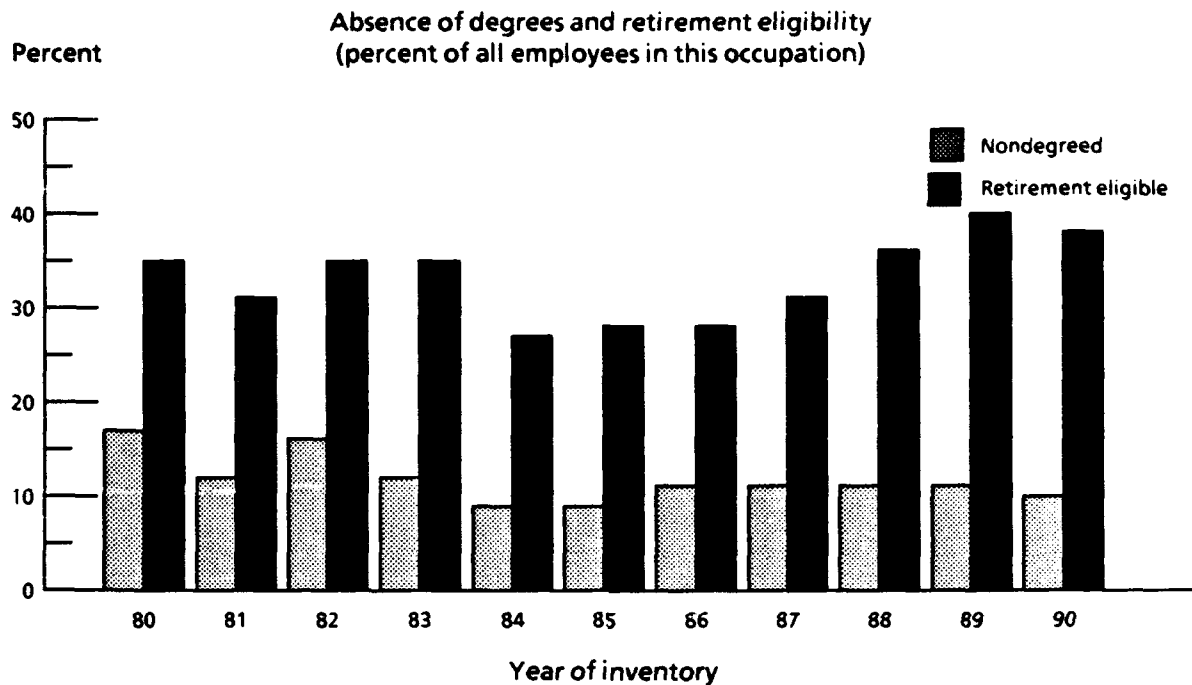
OCCUPATION: 01373 – LAND SURVEYING

1990 Employee Profile
DoD total employed: 14

Selected characteristics			
Gender		**Citizenship**	
Male	14	United States	14
Female	0	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	0	Army	11
Asian	0	Navy	2
Black	0	Marine Corps	0
Hispanic	0	Air Force	1
White	14	Defense Agency	0
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			**Number of employees, by degree level**			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
	Other fields	3	3	0	0	0
	Nondegreed	11	0	0	0	11
	Unknown	0	0	0	0	0

OCCUPATION: 01373 ~ LAND SURVEYING
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Year of inventory

Legend: Nondegreed, Retirement eligible

Average age, length of DoD employment, and years since last degree

Years

Year of inventory

OCCUPATION: 01380 – FOREST PRODUCTS TECHNOLOGY

1990 Employee Profile
DoD total employed: 1

Selected characteristics			
Gender		Citizenship	
Male	1	United States	1
Female	0	Foreign nation	0
Race/ethnicity		Employer	
American Indian	0	Army	0
Asian	0	Navy	0
Black	0	Marine Corps	0
Hispanic	0	Air Force	0
White	1	Defense Agency	1
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Forestry	1	1	0	0	0
	Other fields	0	0	0	0	0
	Nondegreed	0	0	0	0	0
	Unknown	0	0	0	0	0

OCCUPATION: 01380 – FOREST PRODUCTS TECHNOLOGY
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Nondegreed
Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average years
since degree

Average DoD
employment

Year of inventory
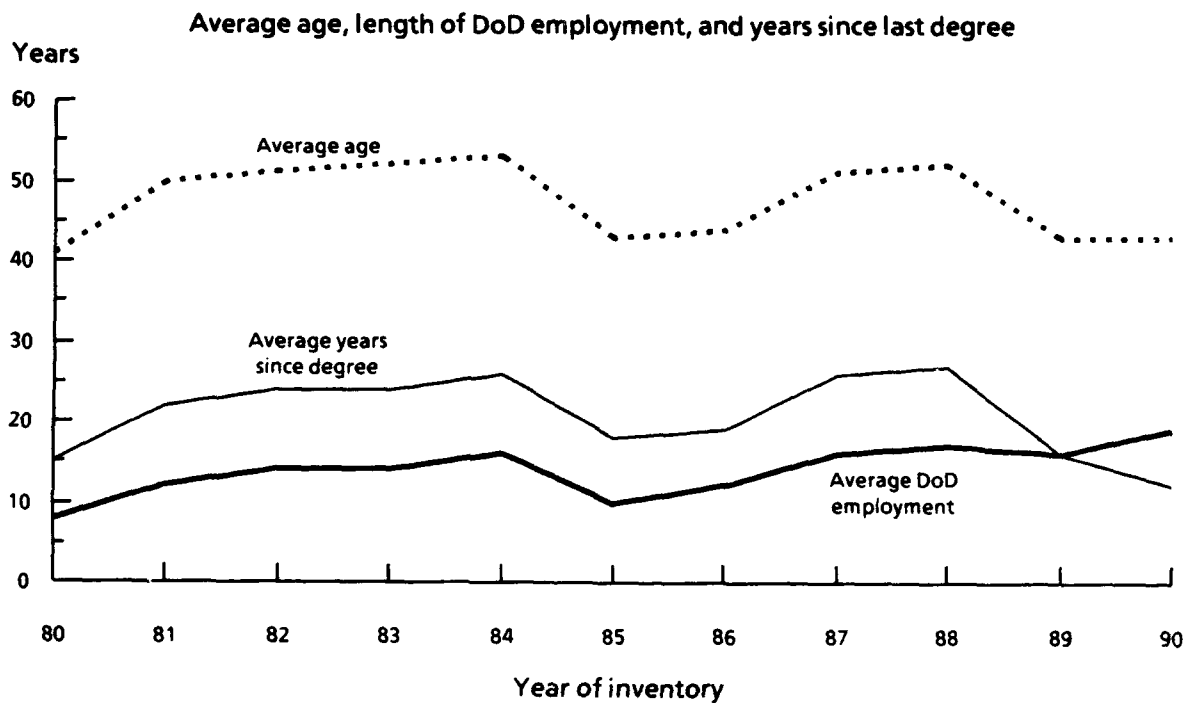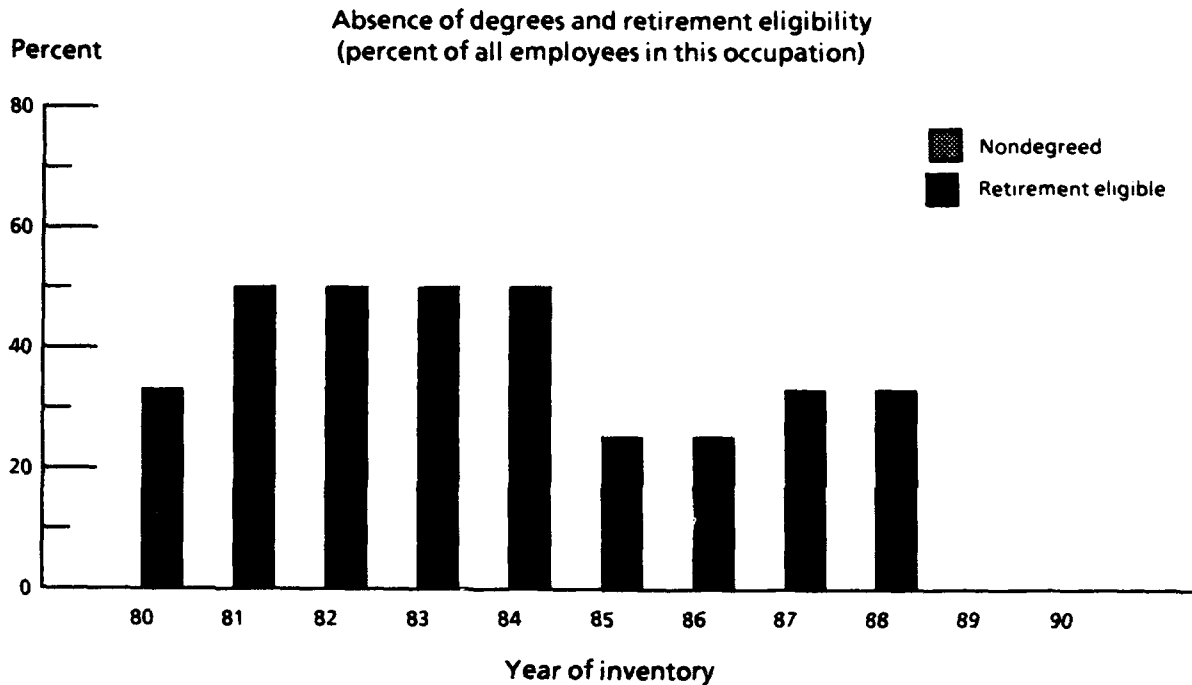
OCCUPATION: 01382 – FOOD TECHNOLOGY

1990 Employee Profile
DoD total employed: 49

Selected characteristics			
Gender		Citizenship	
Male	27	United States	49
Female	22	Foreign nation	0
Race/ethnicity		Employer	
American Indian	0	Army	41
Asian	1	Navy	0
Black	2	Marine Corps	1
Hispanic	0	Air Force	0
White	46	Defense Agency	7
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Food Science and Tech.	19	10	6	3	0
Second	Food and Nutrition	7	3	3	1	0
	Other fields	21	8	9	4	0
	Nondegreed	2	0	0	0	2
	Unknown	0	0	0	0	0

OCCUPATION: 01382 – FOOD TECHNOLOGY
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Year of inventory
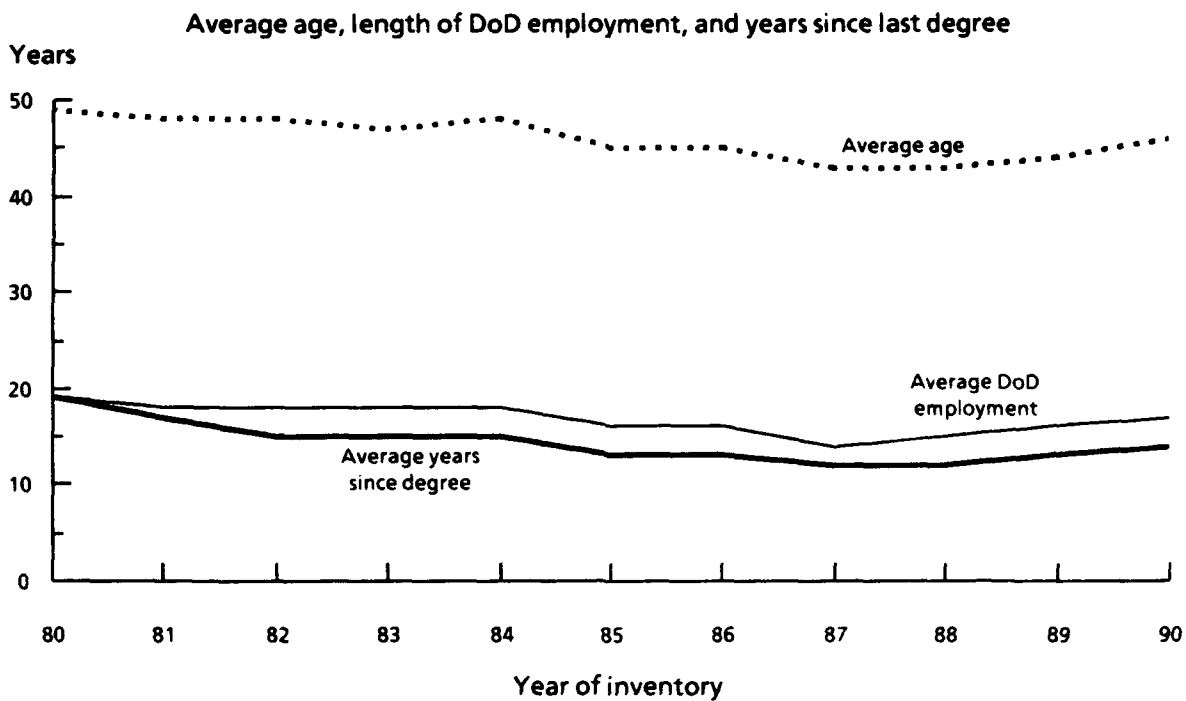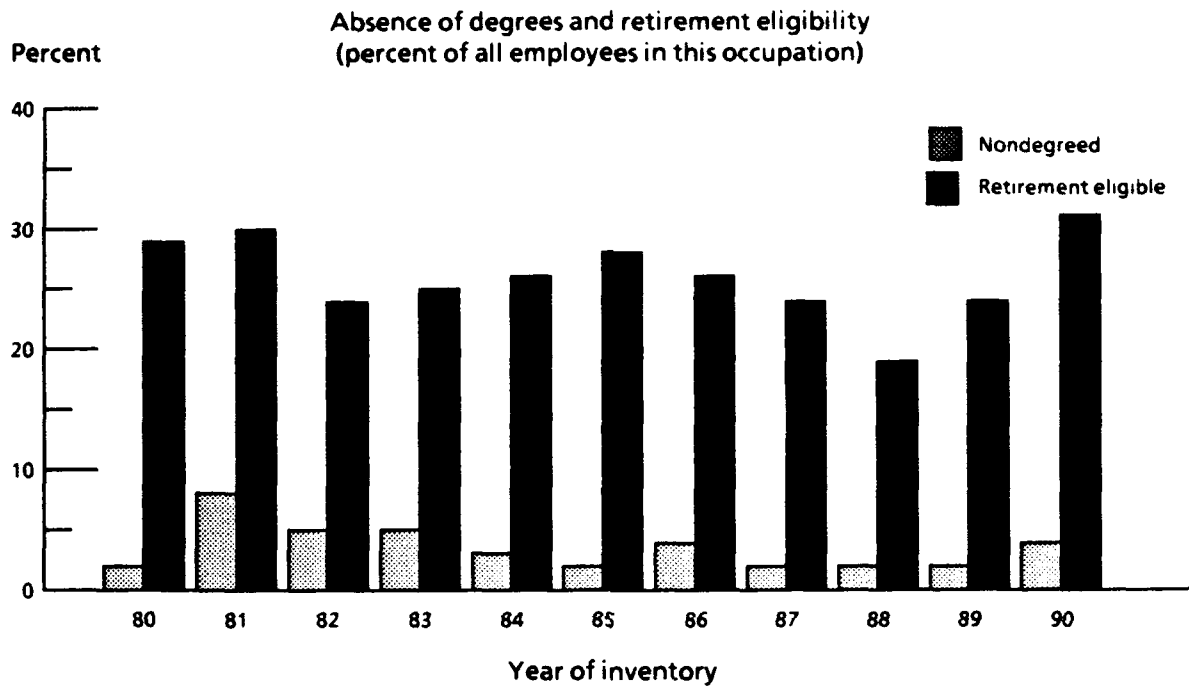
OCCUPATION: 01384 – TEXTILE TECHNOLOGY

1990 Employee Profile
DoD total employed: 67

Selected characteristics			
Gender		**Citizenship**	
Male	34	United States	67
Female	33	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	0	Army	40
Asian	2	Navy	25
Black	2	Marine Corps	0
Hispanic	0	Air Force	1
White	63	Defense Agency	1
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			**Number of employees, by degree level**			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Textile Engineering	36	28	8	0	0
Second	Clothing and Textiles	18	16	2	0	0
	Other fields	9	6	3	0	0
	Nondegreed	3	0	0	0	3
	Unknown	1	1	0	0	0

OCCUPATION: 01384 – TEXTILE TECHNOLOGY
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

- Average age
- Average DoD employment
- Average years since degree

Year of inventory

1990 Employee Profile
DoD total employed: 32

Selected characteristics			
Gender		Citizenship	
Male	31	United States	32
Female	1	Foreign nation	0
Race/ethnicity		Employer	
American Indian	0	Army	6
Asian	0	Navy	14
Black	1	Marine Corps	0
Hispanic	3	Air Force	9
White	28	Defense Agency	3
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Cinematography	5	5	0	0	0
Second	Other Engineering	3	1	0	0	0
Third	Business Mgmt. and Admin.	2	2	0	0	0
Fourth	Mechanical Engineering	2	2	0	0	0
	Other fields	12	10	2	0	0
	Nondegreed	8	0	0	0	8
	Unknown	0	0	0	0	0

OCCUPATION: 01386 – PHOTOGRAPHIC TECHNOLOGY
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

- Average age
- Average DoD employment
- Average years since degree

Year of inventory
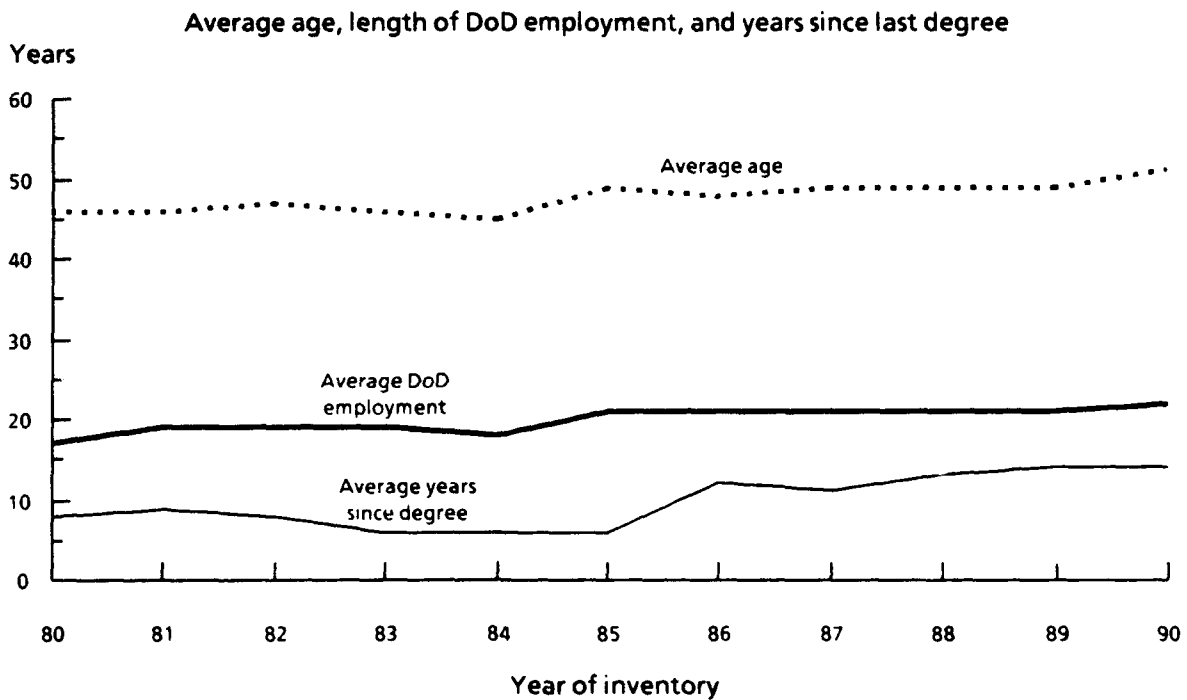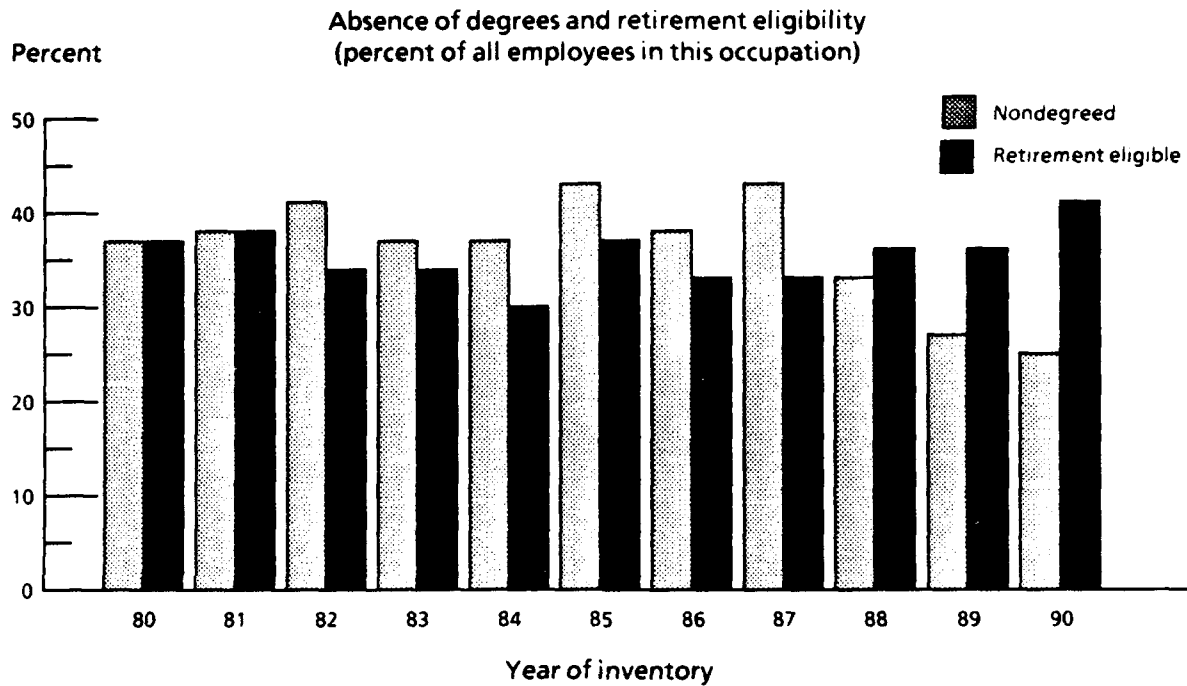
OCCUPATION: 01510 – ACTUARY

1990 Employee Profile
DoD total employed: 9

Selected characteristics

Gender		Citizenship	
Male	8	United States	9
Female	1	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	0	Army	0
Asian	0	Navy	0
Black	0	Marine Corps	0
Hispanic	0	Air Force	2
White	9	Defense Agency	7
Other	0	Unknown	0

Academic degree backgrounds

Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Mathematics, General	2	1	1	0	0
Second	Statistics	2	1	1	0	0
Third	Business Mgmt. and Admin.	2	1	1	0	0
	Other fields	1	0	1	0	0
	Nondegreed	2	0	0	0	2
	Unknown	0	0	0	0	0

OCCUPATION: 01510 – ACTUARY
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD employment

Average years since degree

Year of inventory
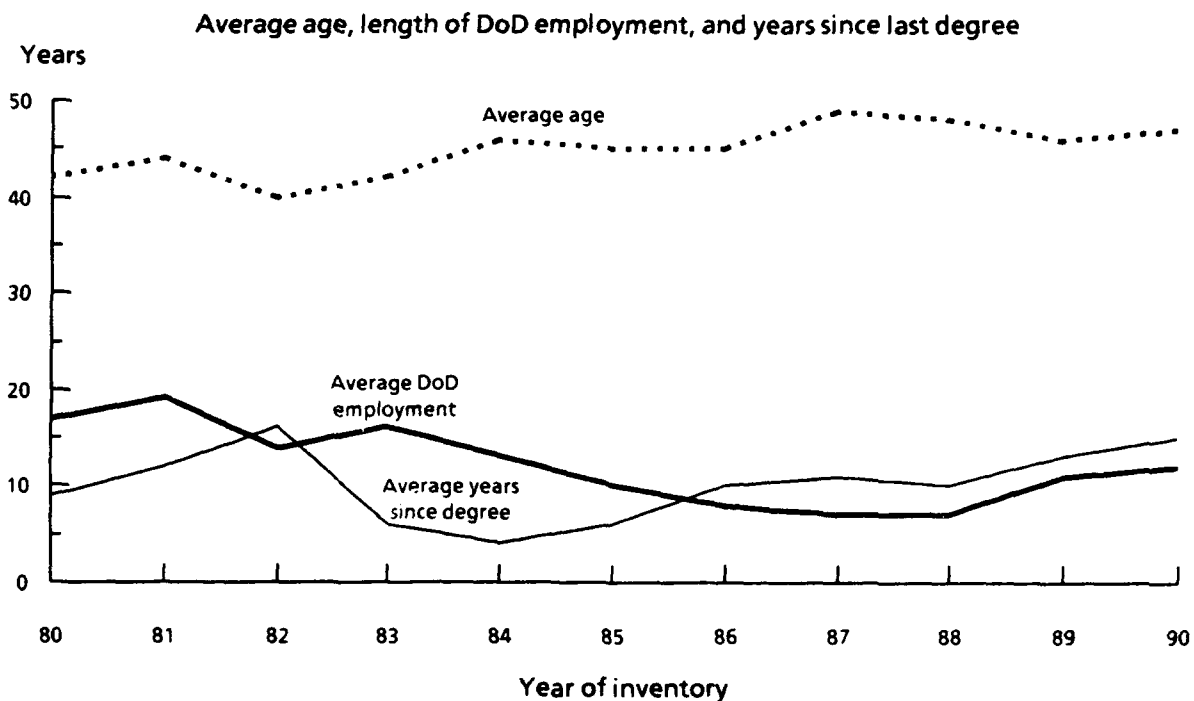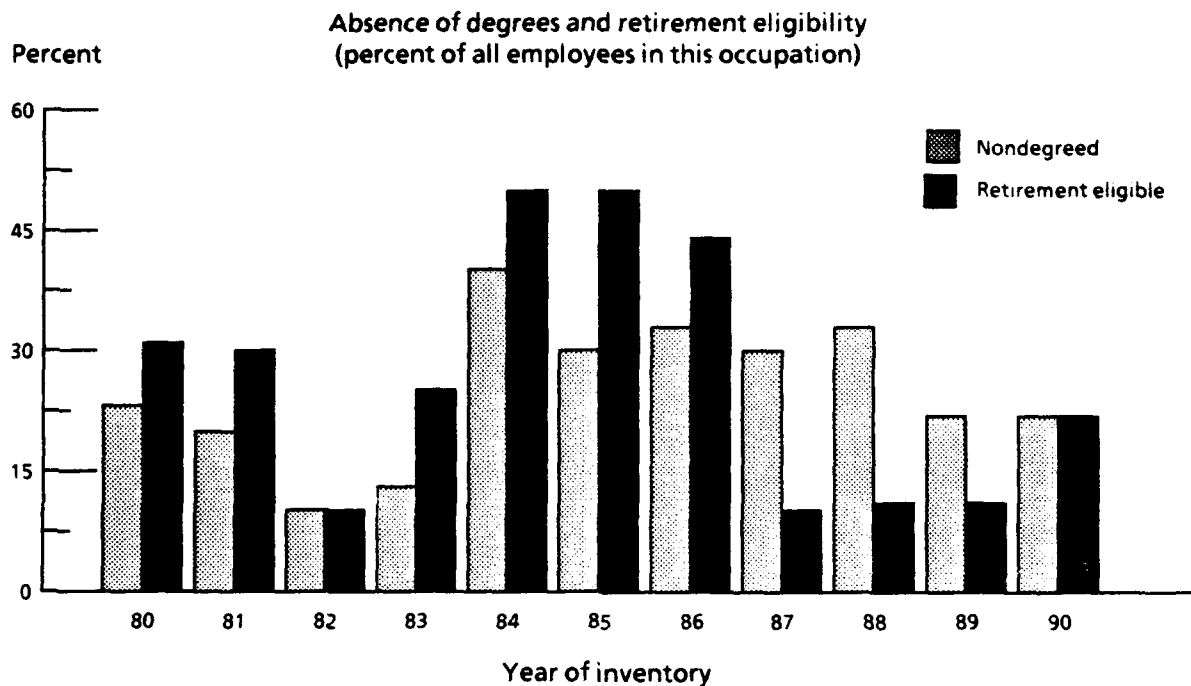
OCCUPATION: 01515 – OPERATIONS RESEARCH

1990 Employee Profile
DoD total employed: 3,478

Selected characteristics

Gender		Citizenship	
Male	2,728	United States	3,478
Female	750	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	18	Army	1,999
Asian	100	Navy	782
Black	172	Marine Corps	8
Hispanic	84	Air Force	470
White	3,104	Defense Agency	219
Other	0	Unknown	0

Academic degree backgrounds

Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Mathematics, General	845	591	203	51	0
Second	Business Mgmt. and Admin.	312	103	204	5	0
Third	Statistics	188	68	93	27	0
Fourth	Operations Research	188	25	147	16	0
Fifth	Physics, General	159	95	47	17	0
Sixth	Computer and Info. Science	119	80	37	2	0
Seventh	Applied Math	93	42	40	11	0
	Other fields	1,435	666	629	140	0
	Nondegreed	132	0	0	0	132
	Unknown	7	5	1	1	0

OCCUPATION: 01515 – OPERATIONS RESEARCH
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD employment

Average years since degree

Year of inventory
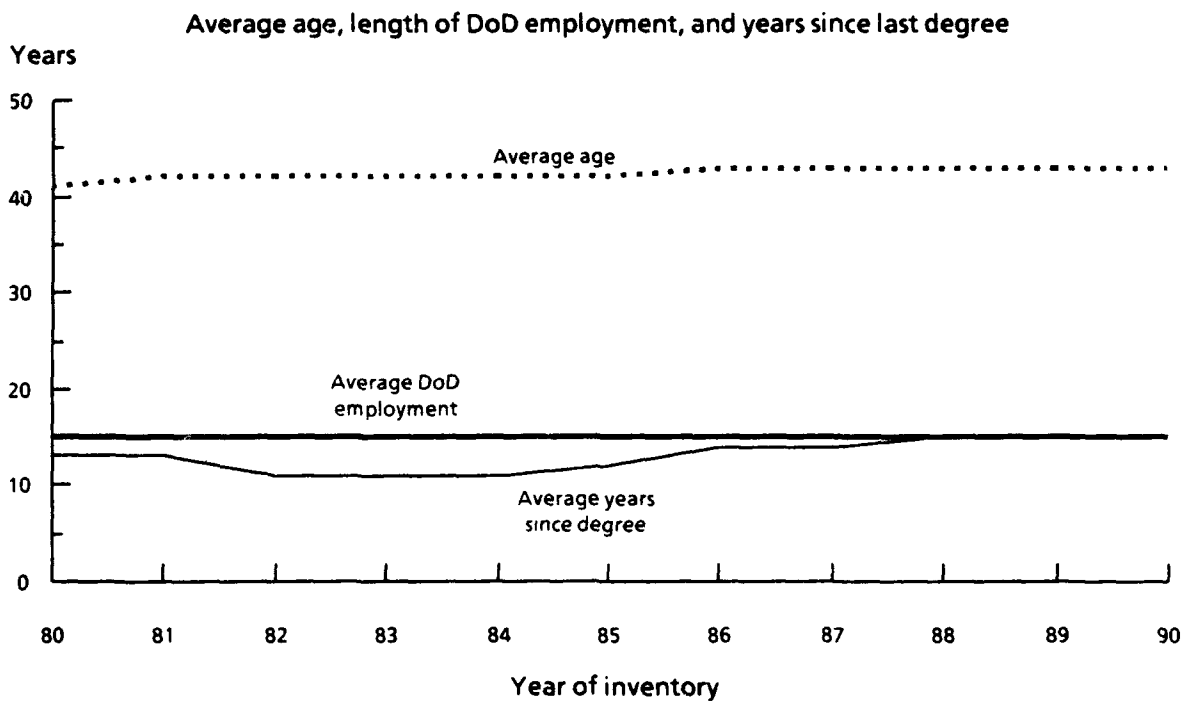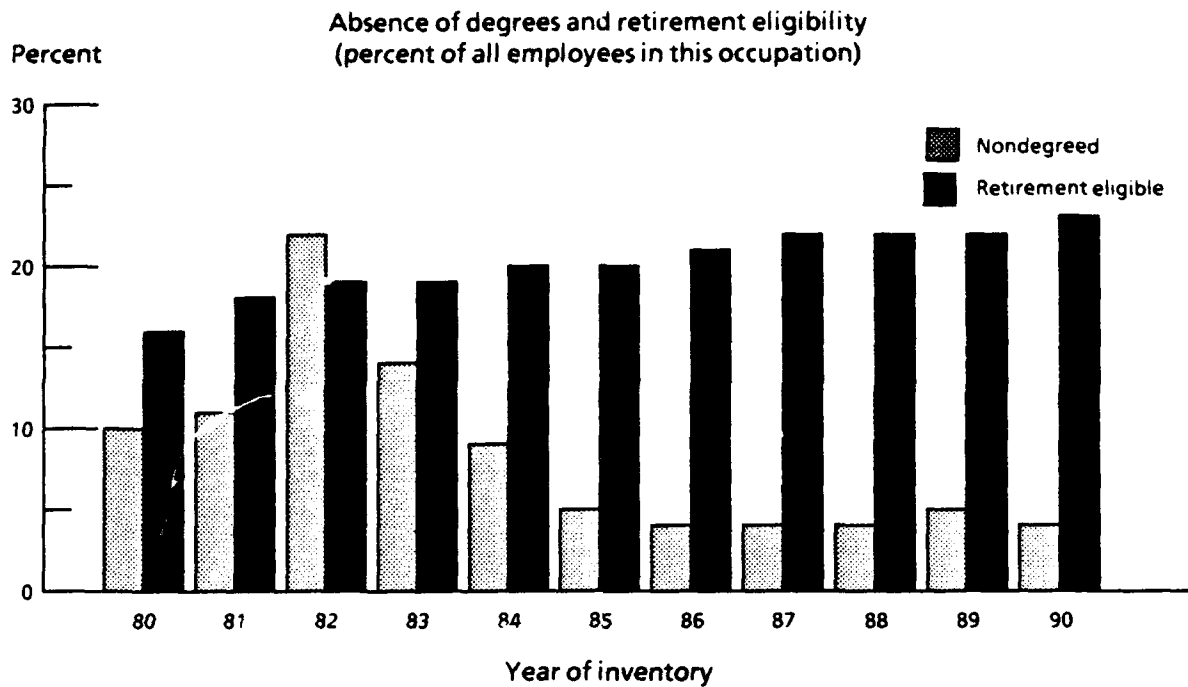
OCCUPATION: 01520 – MATHEMATICS

1990 Employee Profile
DoD total employed: 1,984

Selected characteristics			
Gender		**Citizenship**	
Male	1,431	United States	1,984
Female	553	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	11	Army	462
Asian	79	Navy	1,162
Black	129	Marine Corps	0
Hispanic	57	Air Force	315
White	1,707	Defense Agency	45
Other	1	Unknown	0

Academic degree backgrounds						
Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Mathematics, General	1,314	940	290	84	0
Second	Applied Math	133	56	43	34	0
Third	Computer and Info. Science	87	50	35	2	0
Fourth	Physics, General	60	38	16	6	0
	Other fields	361	179	150	32	0
	Nondegreed	27	0	0	0	27
	Unknown	2	1	0	1	0

OCCUPATION: 01520 – MATHEMATICS
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Nondegreed
Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD
employment

Average years
since degree

Year of inventory

C-174
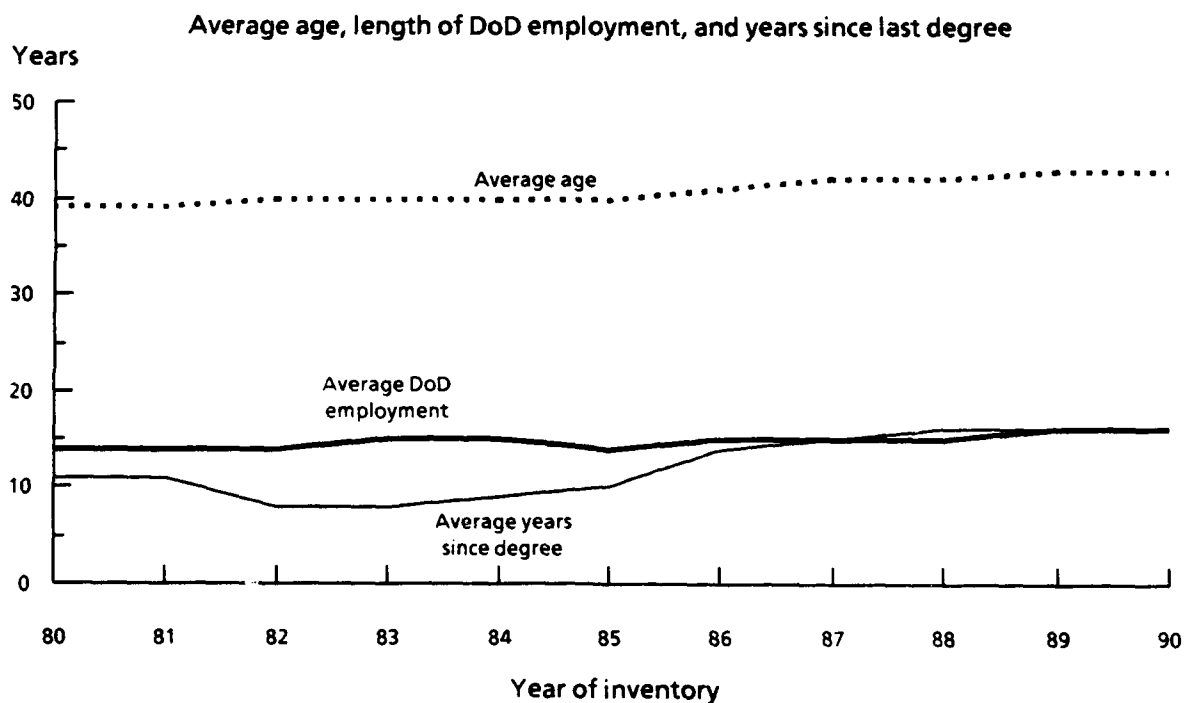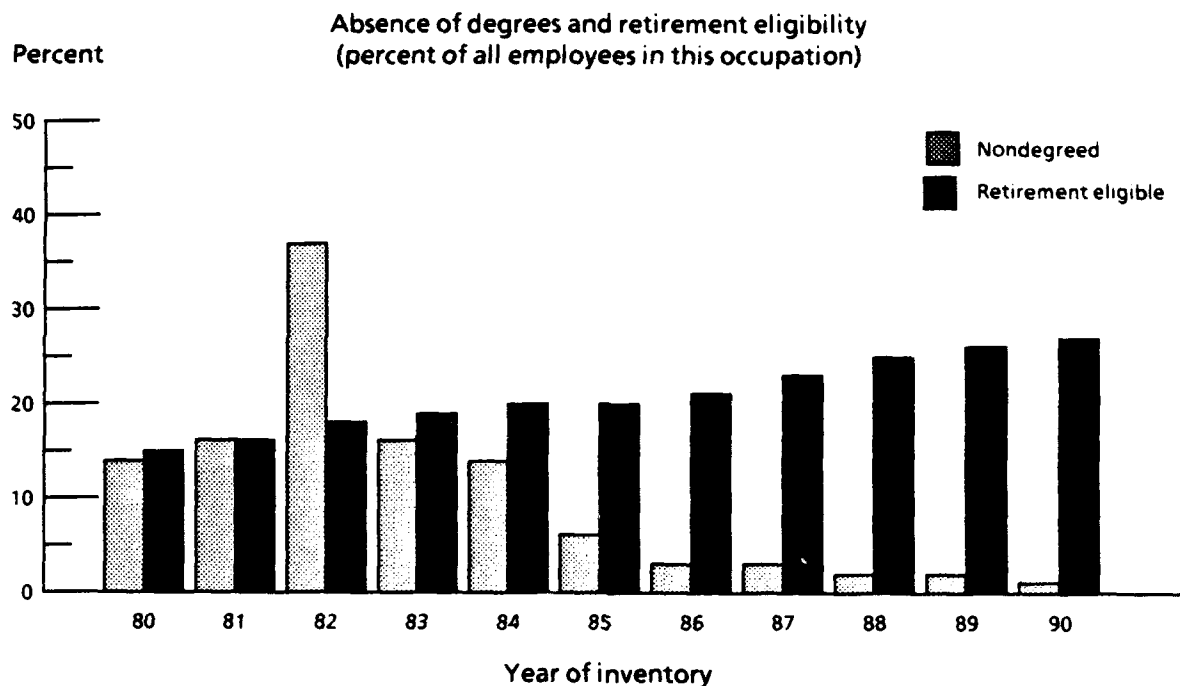
OCCUPATION: 01529 – MATHEMATICS STATISTICIAN

1990 Employee Profile
DoD total employed: 134

Selected characteristics

Gender		Citizenship	
Male	91	United States	134
Female	43	Foreign nation	0
Race/ethnicity		**Employer**	
American Indian	0	Army	53
Asian	5	Navy	54
Black	5	Marine Corps	0
Hispanic	3	Air Force	23
White	121	Defense Agency	4
Other	0	Unknown	0

Academic degree backgrounds

Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Mathematics, General	48	30	18	0	0
Second	Statistics	45	13	21	11	0
	Other fields	35	13	21	1	0
	Nondegreed	6	0	0	0	6
	Unknown	0	0	0	0	0

OCCUPATION: 01529 – MATHEMATICS STATISTICIAN
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD employment

Average years since degree

Year of inventory
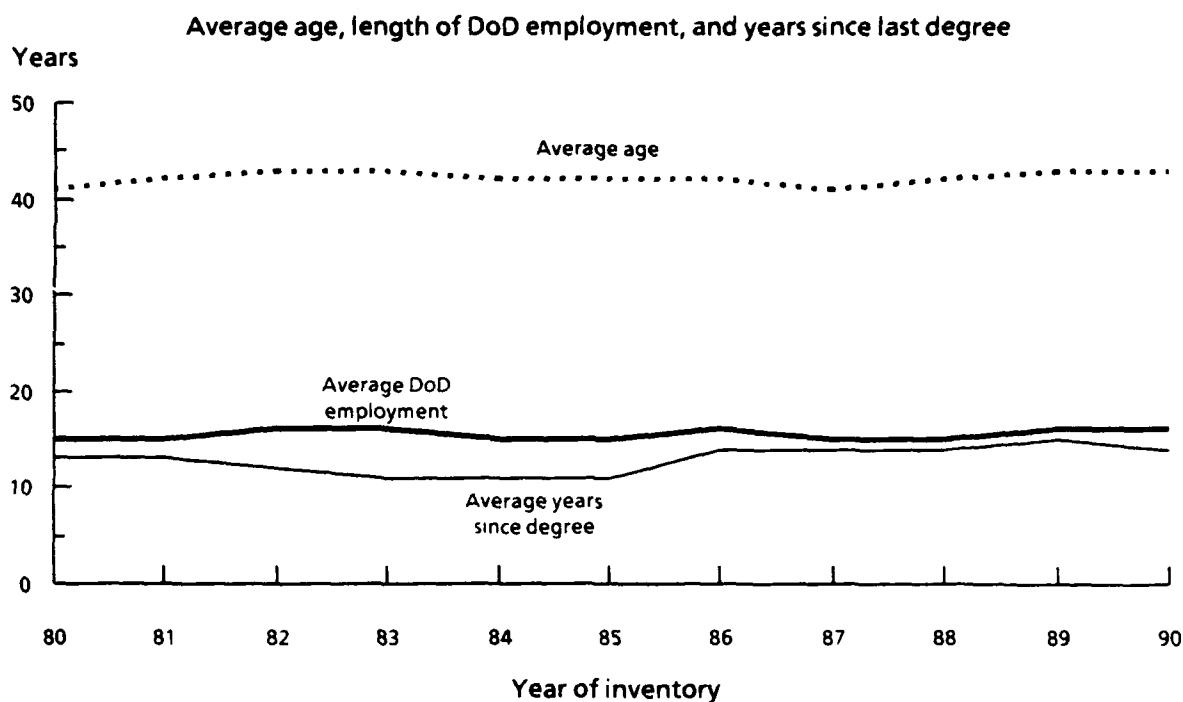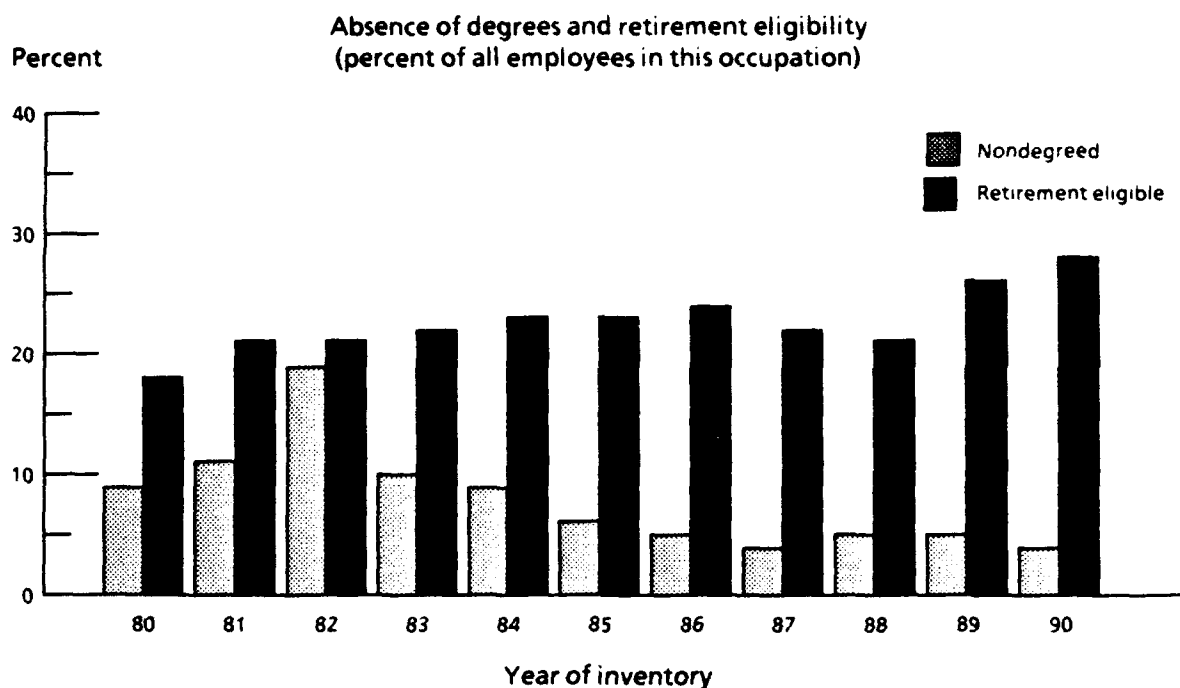
OCCUPATION: 01530 – STATISTICIAN

1990 Employee Profile
DoD total employed: 157

Selected characteristics

Gender		Citizenship	
Male	114	United States	156
Female	43	Foreign nation	1
Race/ethnicity		**Employer**	
American Indian	0	Army	75
Asian	14	Navy	51
Black	10	Marine Corps	3
Hispanic	1	Air Force	16
White	132	Defense Agency	12
Other	0	Unknown	0

Academic degree backgrounds

Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Statistics	39	13	22	4	0
Second	Mathematics, General	24	16	6	2	0
	Other fields	85	36	36	13	0
	Nondegreed	8	0	0	0	8
	Unknown	1	0	1	0	0

OCCUPATION: 01530 – STATISTICIAN
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Legend:
- Nondegreed
- Retirement eligible

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Average age

Average DoD employment

Average years since degree

Year of inventory
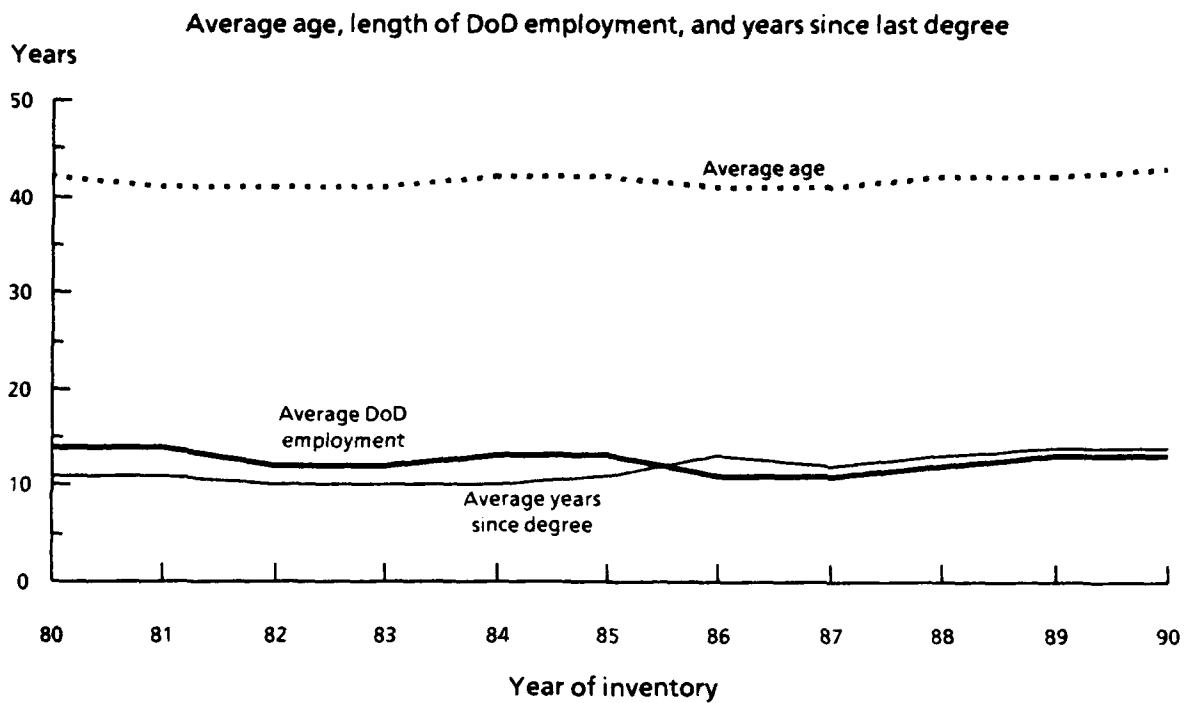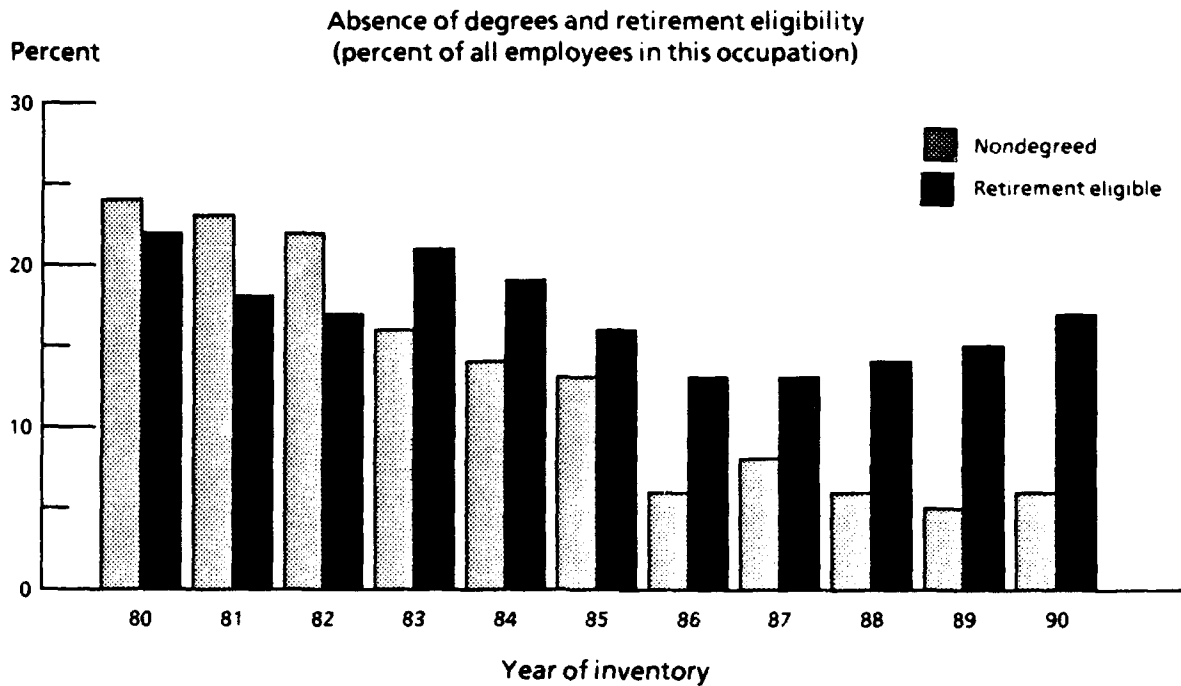
OCCUPATION: 01550 – COMPUTER SCIENCE

1990 Employee Profile
DoD total employed: 2,483

Selected characteristics			
Gender		Citizenship	
Male	1,664	United States	2,481
Female	819	Foreign nation	2
Race/ethnicity		Employer	
American Indian	7	Army	302
Asian	184	Navy	1,562
Black	139	Marine Corps	13
Hispanic	41	Air Force	429
White	2,112	Defense Agency	177
Other	0	Unknown	0

Academic degree backgrounds						
Academic major			Number of employees, by degree level			
Incidence	Title	Total employed	Bach.	Master	Doct.	Other
Highest	Computer and Info. Science	1,353	1,104	227	22	0
Second	Mathematics, General	418	345	66	7	0
Third	Business Mgmt. and Admin.	44	17	27	0	0
	Other fields	600	392	175	33	0
	Nondegreed	66	0	0	0	66
	Unknown	2	2	0	0	0

OCCUPATION: 01550 – COMPUTER SCIENCE
(continued)

1980 through 1990 trends

Absence of degrees and retirement eligibility
(percent of all employees in this occupation)

Percent

Year of inventory

Average age, length of DoD employment, and years since last degree

Years

Year of inventory
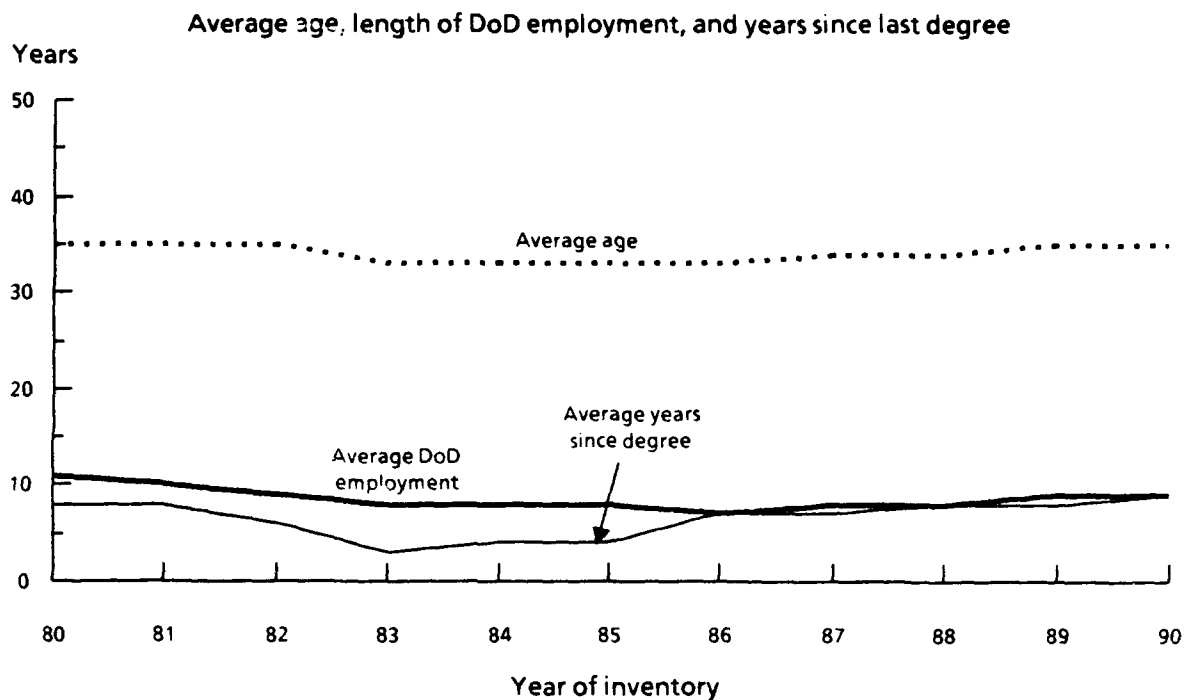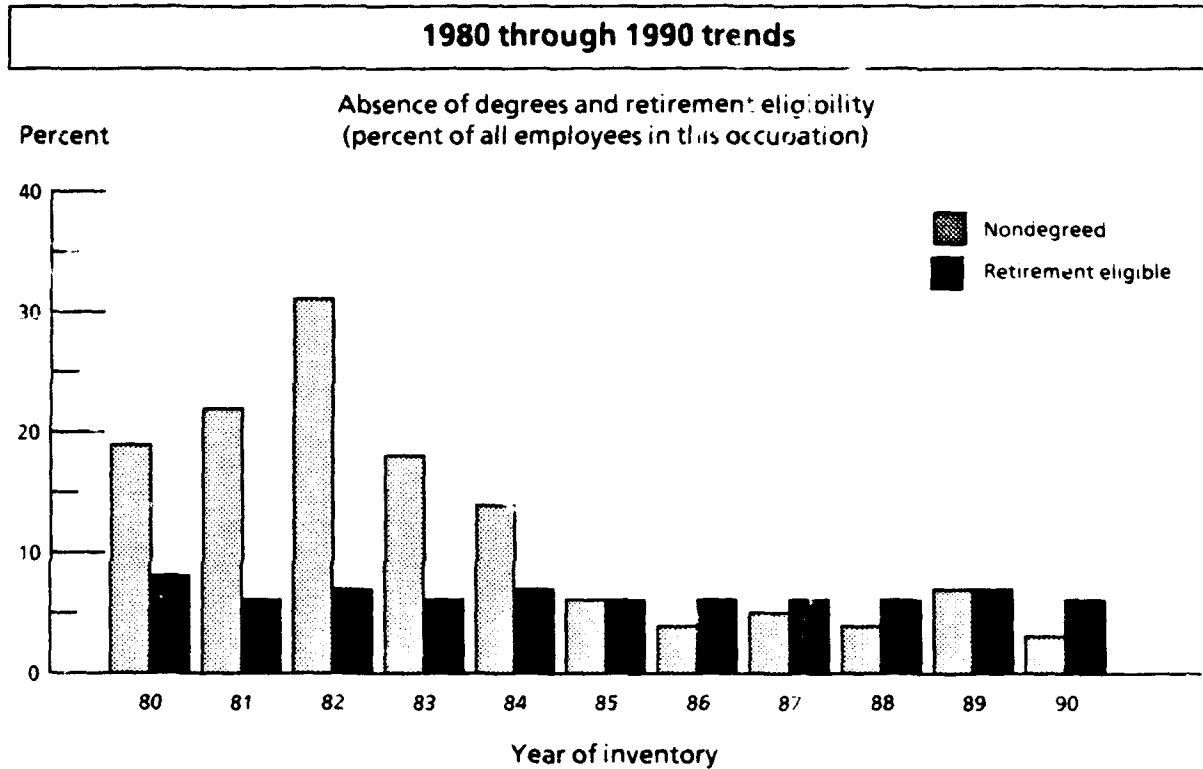
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John T. Durgala, Jr.
Dayton S. Pickett
David A. Smith

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Logistics Management Institute
6400 Goldsboro Road
Bethesda, MD 20817-5886

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Dr. Ted G. Berlincourt, Director, Research and Laboratory Management, Office of the Deputy Director, Defense Research and Engineering (Research and Technology), Office of the Secretary of Defense, Rm 3D375, The Pentagon

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13. ABSTRACT (*Maximum 200 words*)

The national supply of scientists, mathematicians, and engineers (SME) through the year 2020 is analyzed. After comparing the most prominent systems and taxonomies used to classify and account for SME in the United States, a base year inventory of SME, by discipline, is displayed for 1988. A methodology for projecting the supply of SME, by discipline, is then described. The supply of SME is expected to increase at an average annual rate of between .97 and 1.3 percent through 2020. This rate of growth should be adequate to meet national demand in general, and defense needs in particular. Concern is expressed that the nation may not be able to continue exploiting new technologies fully.. If this concern has merit, the national supply of SME, although adequate to meet demand, may be below the level needed to maintain a technological advantage over potential adversaries.

14. SUBJECT TERMS

Scientist, mathematician, engineer, projections, supply, demand, immigration

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